

9-6-2013

Who Will Archive the Archives? Thoughts About the Future of Web Archiving

Michael L. Nelson

Old Dominion University, mnelson@odu.edu

Scott G. Ainsworth

Old Dominion University

Ahmed Alsum

Old Dominion University

Justin F. Brunelle

Old Dominion University

Mat Kelly

Old Dominion University

See next page for additional authors

Follow this and additional works at: https://digitalcommons.odu.edu/computerscience_presentations



Part of the [Archival Science Commons](#)

Recommended Citation

Nelson, Michael L.; Ainsworth, Scott G.; Alsum, Ahmed; Brunelle, Justin F.; Kelly, Mat; SalahEldeen, Hany; Weigle, Michele C.; Sanderson, Robert; and de Sompel, Herbert Van, "Who Will Archive the Archives? Thoughts About the Future of Web Archiving" (2013). *Computer Science Presentations*. 15.

https://digitalcommons.odu.edu/computerscience_presentations/15

This Book is brought to you for free and open access by the Computer Science at ODU Digital Commons. It has been accepted for inclusion in Computer Science Presentations by an authorized administrator of ODU Digital Commons. For more information, please contact digitalcommons@odu.edu.

Authors

Michael L. Nelson, Scott G. Ainsworth, Ahmed Alsum, Justin F. Brunelle, Mat Kelly, Hany SalahEldeen, Michele C. Weigle, Robert Sanderson, and Herbert Van de Sompel

Who Will Archive the Archives?

Thoughts About the Future of Web Archiving

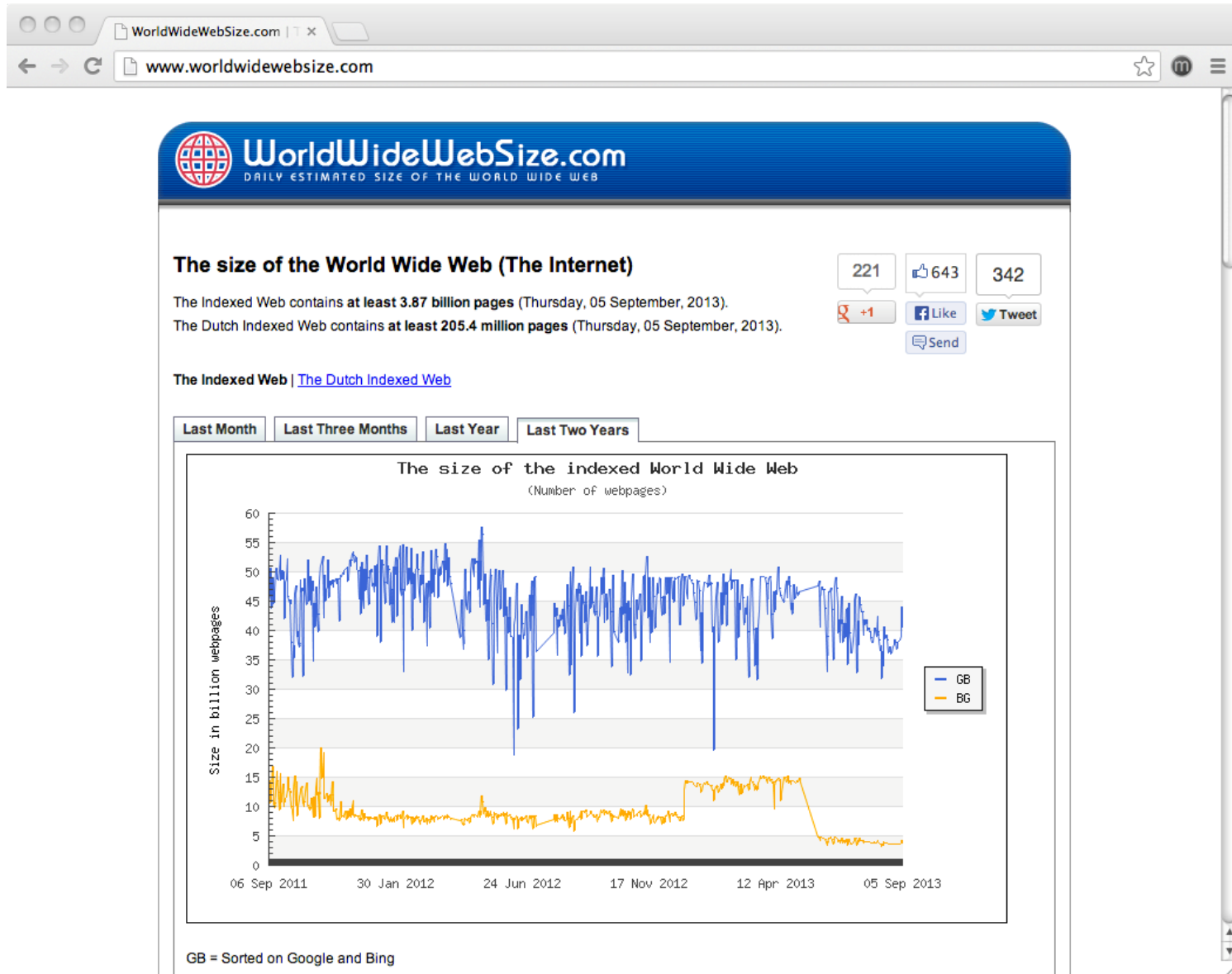
Michael L. Nelson
Old Dominion University

with:

Old Dominion University: Scott G. Ainsworth, Ahmed AlSum, Justin F. Brunelle,
Mat Kelly, Hany SalahEldeen, Michele C. Weigle

Los Alamos National Laboratory: Robert Sanderson, Herbert Van de Sompel

Web Archiving: Big Data?



Two Common Misconceptions About Web Archiving

- Prior = old = obsolete = stale = bad
 - who cares, not an interesting problem
- The Internet Archive has every copy of everything that has ever existed
 - who cares, problem solved

Why Care About The Past?

From an anonymous WWW 2010 reviewer about our Memento paper (*emphasis mine*):

"Is there any statistics to show that many or a good number of Web *users would like to get obsolete data or resources?* "

one answer: replay of contemporary pages >> summary pages

<http://www.slideshare.net/phonedude/why-careaboutthepast>

<http://www.nytimes.com/2013/06/19/books/seven-american-deaths-and-disasters-transcribes-the-news.html>

Requested Date: 1996

2010 07/02/2010

Hurricane Katrina - Special Repor...

**CNN.com**Member Center: [Sign In](#) | [Register](#)[International Edition](#)

SEARCH

 THE WEB CNN.COM

Search

[CNN.com Home Page](#) - [U.S.](#) - [Weather](#) - [More CNN.com sections:](#)**Special Reports**CNN's coverage of Katrina and the aftermath won a [2006 Peabody Award](#), the oldest honor in electronic media.

Hurricane Katrina

**HURRICANE KATRINA
MAIN PAGE***Editor's Note: This special report was archived in September 2006.*

Voices from the Gulf Coast

August 29, 2005: Hurricane Katrina made landfall on the Gulf Coast, destroying lives, leveling homes and leaving thousands of survivors with the same story: We lost everything. One year later, many still coped with Katrina's devastation. Some had moved forward, but for others recovery was at a standstill. CNN.com visited the region to get their stories.

Rebuilding

- [Mardi Gras](#)
- [Panoramas](#)

People

- [Your Stories](#)
- [One Family's Story](#)
- [Evacuation](#)

Rescue & Relief

- [Help Center](#)

Storm & Flood

- [Satellite Images](#)

Hurricane Season

[Special Report](#)

VS.

SEARCH

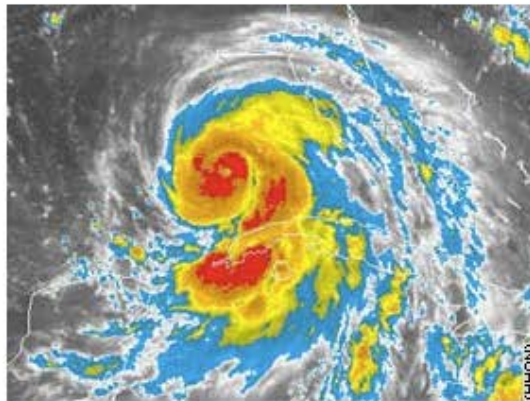
THE WEB CNN.com

SEARCH

Powered by **YAHOO!** search

Updated: 11:16 a.m. EDT (15:16 GMT), August 27, 2005

Strengthening Katrina to hammer Gulf Coast



Blamed for at least seven deaths in Florida, powerful Hurricane Katrina is becoming stronger as it churns in the Gulf of Mexico. Forecasts say it's poised to deal a hammer blow to the Mississippi Gulf Coast and southeast Louisiana as a possible Category 4 storm early next week. Meanwhile, residents of southeast Florida are cleaning up after Katrina cut across the state packing strong winds and dumping heavy rain.

[FULL STORY](#)

• Watch: [Oil rig evacuates](#) | [Homes flooded](#)

MORE NEWS

[Most Popular](#) ▶

- [1,000 prisoners released from Iraq prison](#)
- [Brothers held again in Natalee Holloway case](#) | [Watch](#)
- [Vote to save bases in 2 states, lawsuit in third](#) | [Watch](#)
- Watch: [Anti-Sheehan group takes duel to Texas \(2:20\)](#)
- [Power-packed muscle cars come roaring back](#)
- [Oprah 'furious' at funeral snub claim](#)
- [U.S. soldier killed in Afghan attack](#)
- [Bush counsels patience in viewing Iraq war](#)
- [Criminal probe into 17 Paris fire deaths](#) | [Gallery](#) | [Watch](#)

WATCH FREE VIDEO

[Browse/Search](#)

[Mistaken for a terrorist \(2:17\)](#)



[Soundcheck with Faith Hill \(2:35\)](#)



[Now In The News \(11:14 a.m. ET\)](#): Your quick news update

Featured Video

More Video Picks

BUSINESS at [CNNMoney](#)

[Markets](#): As of close Aug 26

DOW ▼ -53.34 10,397.29

NAS ▼ -13.60 2,120.77

S&P ▼ -7.29 1,205.10

ON CNN TV [Schedule](#) ▶

[Dead Wrong: Inside an Intelligence Meltdown](#)

How did U.S. intelligence get it so wrong? CNN investigates how faulty intelligence led to the Iran

Requested Date: 1996

2010 06/21/2010

CNN.com

Member Services

International Edition | Netscape

MAKE CNN.com YOUR HOME PAGE

SEARCH

THE WEB CNN.com

SEARCH

Powered by YAHOO! search

Home Page

World

U.S.

Weather

Business at CNNMoney

Sports at SL.com

Politics

Law

Technology

Science & Space

Health

Entertainment

Travel

Education

Special Reports

Video NOW FREE

Autos with Edmunds.com

SERVICES

E-mail Newsletters

Your E-mail Alerts

RSS XML

CNNtoGO

Contact Us

Updated: 11:07 p.m. EDT (03:07 GMT), August 27, 2005

Katrina drives people away from Gulf Coast



People leaving New Orleans pack highways.

Tourists and New Orleans residents are leaving the city as Hurricane Katrina churns closer to Louisiana and Mississippi. Officials fear New Orleans is vulnerable because it sits an average of 6 feet below sea level. Katrina could be a category 4 when it makes landfall. "This is a very, very dangerous hurricane," says hurricane center Director Max Mayfield.

[FULL STORY](#)

• Watch: 'Very concerned' L'Big Easy' prepares

MORE NEWS

[Most Popular](#)

- [Northwest strikers stay on picket lines](#)
- [California files french fry lawsuit](#)
- [Dual protests square off in Crawford](#) | [Watch](#)
- CNN/Money: [Greenspan: End of home boom inevitable](#)
- [Encephalitis outbreak hits children, poor](#) | [Watch](#)
- [Oprah 'furious' at funeral snub claim](#)
- [Watch: Will aging rats lead to younger people?](#)
- [Tall, twisted building opens](#)
- ['Milkshake murder' trial nears end](#)
- [Dutch investigate producer's 'Big Brother' baby plan](#)

WATCH FREE VIDEO

[Browse/Search](#)

[Living longer](#)
(2:05)



[Nail polish car](#)
(:56)



[Now In The News:](#) Your quick news update

[Featured Video](#)

[More Video Picks](#)

BUSINESS at CNNMoney

[Markets:](#) As of close Aug 26

[DOW](#) ▼ -53.34 10,397.29

[NAS](#) ▼ -13.60 2,120.77

ON CNN TV [Schedule](#)

[Reasonable Doubt: Can crime labs be trusted?](#)

DNA has cleared some innocent people. But forensic

SEARCH

THE WEB CNN.com

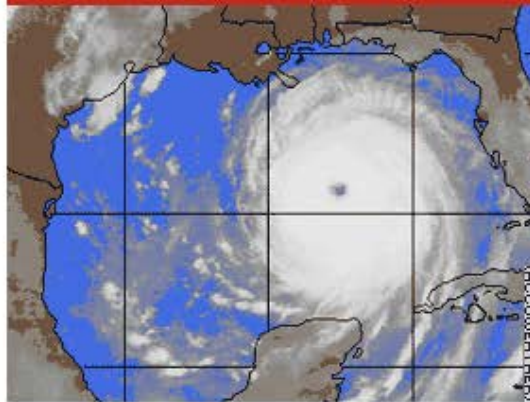
SEARCH

Powered by **YAHOO!** search

Updated: 10:56 a.m. EDT (14:56 GMT), August 28, 2005

New Orleans orders mandatory evacuation

BREAKING NEWS



With powerful and strengthening Hurricane Katrina headed straight for his city, the mayor of New Orleans today ordered the mandatory evacuation of residents. The Category 5 storm has maximum sustained winds near 175 mph and has already been blamed for nine deaths in South Florida. Looking ahead, Max Mayfield of the National Hurricane Center said: "It has the potential for a large loss of life."

[DEVELOPING STORY](#)

MORE NEWS

[Most Popular](#)

- [Committee signs Iraq's draft constitution](#) | [Watch](#)
- [Suicide bomber injures 21 in Israel](#) | [Watch](#)
- [California files french fry lawsuit](#)
- [Dual protests square off in Crawford](#) | [Watch](#)
- [Watch: Will aging rats lead to younger people?](#)
- ['Milkshake murder' trial nears end](#)
- [Report: Swazi princess whipped for loud music](#)
- [USS Monitor's cat mystery](#)
- [Rap mogul 'Suge' Knight shot at Miami party](#)

WATCH FREE VIDEO

[Browse/Search](#)

[Lap danger](#)
(2:48)



[Human cannonball crosses border](#)
(:48)



[Now In The News \(10:33 a.m. ET\):](#) Your quick news update

Featured Video

More Video Picks

BUSINESS at [CNNMoney](#)

[Markets:](#) As of close Aug 26

DOW ▼ -53.34 10,397.29

ON CNN TV [Schedule](#)

[Reasonable Doubt: Can crime labs be trusted?](#)

DNA has cleared some innocent people. But forensic

Requested Date: 1996

2010 06/21/2010

CNN.com

Member Services

International Edition | Netscape

MAKE CNN.com YOUR HOME PAGE

SEARCH

THE WEB CNN.com

SEARCH

Powered by YAHOO! search

Home Page

World

U.S.

Weather

Business at CNNMoney

Sports at SL.com

Politics

Law

Technology

Science & Space

Health

Entertainment

Travel

Education

Special Reports

Video NOW FREE

Autos with Edmunds.com

SERVICES

E-mail Newsletters


Your E-mail Alerts

RSS XML

CNNtoGO

Contact Us

Updated: 7:58 p.m. EDT (23:58 GMT), August 29, 2005



Killer Katrina heading inland

Residents in New Orleans struggle to keep above the rising flood waters.

Killer Katrina heading inland

- Mississippi: Three dead, "unprecedented damage"
- More than 50 rescued from floods in New Orleans
- Katrina downgraded to tropical storm
- Parts of six Louisiana parishes "devastated"
- Oil rig breaks loose, hits Mobile River bridge
- "Life-threatening storm surge flooding" occurring

DEVELOPING STORY

- **Watch:** [Wind flogs Mobile](#) | [A beaten 'Big Easy'](#)
- **Watch:** [Katrina's destructive day](#) | [Biloxi battered](#)
- **Gallery:** [Photoblog](#) | [CNN reporters: In the heart of storm](#)
- **Special Report:** [Tracking Katrina](#) | [In depth](#) | [Gallery](#)
- **Citizen Journalist:** [Your e-mails](#) | [Gallery](#) | [Share your story](#)

MORE NEWS

[Most Popular](#)

- [New Orleans refugees told stay away](#) | [Watch](#)
- [Downtown Mobile under water](#) | [Watch](#)
- [CNN/Money: Wholesale gas prices soar](#) | [Watch](#)
- [TIME.com: Is global warming fueling Katrina?](#)
- [CNN/Money: Storm cost could hit \\$16B](#) | [Watch](#)
- [Struggling airlines hit by Katrina groundings](#)
- [Eight ex-KPMG execs indicted](#)
- [Workers struggle to save seals](#)

WATCH FREE VIDEO

[Browse/Search](#)

[Ripping and roaring through the Gulf](#) (2:27)



[The Big Easy takes a battering](#) (2:00)



[Now in The News \(6:30 p.m. ET\):](#) Your quick news update

[Featured Video](#)
[More Video Picks](#)
BUSINESS at [CNNMoney](#)
[Markets:](#) 5:16 p.m. ET, Aug 29

ON CNN TV [Schedule](#)
[Katrina continuing coverage](#)

Requested Date: 1996


2010 06/21/2010

CNN.com

+

CNN.com

Member Services

[International Edition](#) |  Netscape

▶ MAKE CNN.com YOUR HOME PAGE


SEARCH

THE WEB CNN.com

SEARCH

Updated: 5:33 a.m. EDT (09:33 GMT), August 30, 2005

54 DEAD IN MISSISSIPPI

 [Levee breached in New Orleans](#)

Levee breached in New Orleans

- Estimated 50 dead in 1 Mississippi county, officials say
- Levee breach in New Orleans forces hospital evacuation
- 1.3 million without power
- Tens of thousands to be homeless for months
- American Red Cross launching its largest relief operation

[FULL STORY](#)

- **CNN Access:** [My apartment complex is totally leveled](#)
- **Watch:** [Rescued from a roof](#) | [Water rises to eaves](#)
- **Gallery:** [Photoblog](#) | [CNN reporters: In the heart of storm](#)
- **Special Report:** [Tracking Katrina](#) | [In depth](#) | [Gallery](#)
- **Citizen journalist:** [Your e-mails](#) | [Gallery](#) | [Share your story](#)

Residents struggle to keep above the rising flood waters.

MORE NEWS

[Most Popular](#)

- [Huge relief effort under way](#)
- [54 die in Mississippi, 50 in one county](#) | [Watch](#)
- [Louisiana evacuees told stay away](#) | [Watch](#)
- [Downtown Mobile under water](#) | [Watch](#)
- **CNN/Money:** [Wholesale gas prices soar](#) | [Watch](#)
- **TIME.com:** [Is global warming fueling Katrina?](#)

WATCH FREE VIDEO

[Browse/Search](#)

[Up close on the devastation in New Orleans](#)
(1:57)



[A tour of the damage in New Orleans](#) (2:42)

[Now In The News:](#) Your quick news update

Featured Video

More Video Picks

Requested Date: 1996

2010 06/21/2010

CNN.com

+

CNN.com

Member Services

[International Edition](#) |  Netscape

▶ MAKE CNN.com YOUR HOME PAGE

SEARCH

THE WEB CNN.com

SEARCH

Updated: 1:44 p.m. EDT (17:44 GMT), August 30, 2005

STATES OF DEVASTATION

This image is
no longer available

Floodwaters from Hurricane Katrina cover a portion of New Orleans today.

Death toll rising in Katrina's wake

- **Impact:** [Katrina's toll leaves Gulf Coast reeling](#) | [Watch](#)
- **People:** [Survivor describes harrowing experience](#) | [Watch](#)
- **Recovery:** [Aid groups sending rescuers, supplies](#) | [Watch](#)
- **Assistance:** [How to help storm victims](#) | [Watch](#)

DEVELOPING STORY

- **Watch:** [Screams for help](#) | [Day that wouldn't end](#)
- **Watch:** [Katrina-spawned tornado destroys farm](#)
- **Watch:** ['Everything is gone'](#) | [Rooftop rescue](#) | [Katrina's fury](#)
- **Special Report:** [Tracking Katrina](#) | [Gallery](#) | [Map](#)
- **Assisting victims:** [Do you want to help?](#)
- **Citizen Journalist:** [Your e-mails](#) | [Gallery](#) | [Share your story](#)

MORE NEWS

[Most Popular](#) ▶

- ['Significant' death toll in New Orleans](#) | [Watch](#)
- [Mississippi governor vows to rebuild](#) | [Watch](#)
- [Survivors 'screaming for help'](#) | [Watch](#)
- [Bush cuts short vacation because of Katrina](#)
- [CNN/Money: Katrina closes 123 Wal-Marts](#)
- [CNN/Money: Oil hits record near \\$71](#) | [Watch](#)
- [Katrina overwhelms weather Web sites](#)

WATCH FREE VIDEO

[Browse/Search](#)

[Rescue efforts under way](#)
(2:47)



[Water pours into New Orleans](#) (1:19)



[Now in The News \(1:31 p.m. ET\):](#) Your quick news update

Featured Video

More Video Picks

Requested Date: 1996

2010 06/21/2010


CNN.com

+


CNN.com

WITH FREE VIDEO

Member Services

[International Edition](#) |  Netscape

 MAKE CNN.com YOUR HOME PAGE

SEARCH

 THE WEB CNN.com

SEARCH

Powered by  YAHOO! search

Home Page

World

U.S.

Weather

Business at CNNMoney

Sports at SL.com

Politics

Law

Technology

Science & Space

Health

Entertainment

Travel

Education

Special Reports


Video **NOW FREE**

Autos with Edmunds.com

SERVICES

E-mail Newsletters

Your E-mail Alerts

RSS 

CNNtoGO

Contact Us

Updated: 6:14 a.m. EDT (10:14 GMT), August 31, 2005

SLIPPING INTO CHAOS



A shotgun-toting New Orleans police officer has a word with a man on Canal Street.

Unrest grows in New Orleans

- Water still rising in Crescent City, with no way out
- Looting, shootings reported
- New Orleans mayor blasts failure to patch levees
- Louisiana governor declares day of prayer
- Critical patients being airlifted, shelters being evacuated
- Paint marks indicate Mississippi homes with bodies

FULL STORY

- Watch: [Chaotic aftermath](#) | [Tragedy, devastation](#)
- Watch: [The struggle to survive](#) | [Nature's fury explained](#)
- Special Report: [Trail of destruction](#) | [Gallery](#) | [Map](#) | [Blog](#)
- Citizen journalist: [Your e-mails](#) | [Gallery](#) | [Share your story](#)
- Hotlines: [Emergency info](#) | [How to help](#)

MORE NEWS

[Most Popular](#) >

- [Mayor blasts failure to patch levee breaches](#)
- [Tensions rising in New Orleans](#) | [Watch](#)
- [Relief efforts mobilizing](#) | [Watch](#)
- [Victims left with nothing](#) | [Watch](#)
- [States struggle with destruction](#) | [Watch](#)
- [Alabama power outage statewide](#) | [Watch](#)
- [Mississippi expects heavy death toll](#) | [Watch](#)

WATCH FREE VIDEO

[Browse/Search](#)
[Lifted to safety](#)
(2:32)

[Hurricane Katrina's ongoing aftermath](#) (4:00)

[Now in The News:](#) Your quick news update

[Featured Video](#)
[More Video Picks](#)

Requested Date: 1996

2010 06/21/2010

CNN.com

Member Services

International Edition | Netscape

MAKE CNN.com YOUR HOME PAGE

SEARCH

THE WEB CNN.com

SEARCH

Powered by YAHOO! search

Home Page

World

U.S.

Weather

Business at CNNMoney

Sports at SL.com

Politics

Law

Technology

Science & Space

Health

Entertainment

Travel

Education

Special Reports

Video NOW FREE

Autos with Edmunds.com

SERVICES

E-mail Newsletters

Your E-mail Alerts

RSS XML

CNNtoGO

Contact Us

Updated: 3:44 p.m. EDT (19:44 GMT), August 31, 2005

HEALTH EMERGENCY



Survivors on an apartment building roof try to get the attention of rescuers.

Health fears as bodies lie in water

- Public health emergency declared; cholera, typhoid fears
- Katrina death toll so far estimated at least 120
- New Orleans mayor says toll in his city will be hundreds
- Superdome evacuees moving to Astrodome

FULL STORY

- Watch: [Saved by a tree](#) | [Dome must be evacuated](#)
- Watch: [For Slidell, very bad bump in road](#)
- Special Report: [Trail of destruction](#) | [Gallery](#) | [Levee system](#)
- Citizen Journalist: [Your e-mails](#) | [Gallery](#) | [Share your story](#)
- Hotlines: [Where to get and give help](#)

MORE NEWS

[Most Popular](#)

- [Public health threat looming](#) | [Watch](#)
- [Superdome victims moving to Texas](#) | [Watch](#)
- [CNN reporters: Heartbreak across the coast](#)
- [Feds fan out for storm recovery efforts](#) | [Watch](#)
- [Wife makes desperate trip with husband's body](#)
- Watch: [Wife searches for missing husband](#)

WATCH FREE VIDEO

[Browse/Search](#)

[Health risks post-Katrina](#)
(2:18)



[Clinging to a tree](#) (3:25)



[Now in The News \(3:31 p.m. ET\)](#): Your quick news update


[Featured Video](#)
[More Video Picks](#)

Requested Date: 1996

2010 06/21/2010

CNN.com

Member Services

[International Edition](#) |  Netscape

▶ MAKE CNN.com YOUR HOME PAGE

SEARCH

THE WEB CNN.com

SEARCH

Powered by 

Home Page

World

U.S.

Weather

Business at CNNMoney

Sports at SI.com

Politics

Law

Technology

Science & Space

Health

Entertainment

Travel

Education

Special Reports

Video **NOW FREE**

Autos with Edmunds.com

SERVICES

E-mail Newsletters

Your E-mail Alerts

RSS 

CNNtoGO

Contact Us

Updated: 9:51 p.m. EDT (01:51 GMT), August 31, 2005

GETTING OUT



Buses leave New Orleans with evacuees who had been holed up in the Superdome.

Evacuation of survivors begins

- Public health emergency declared; cholera, typhoid fears
- First evacuee buses leave New Orleans
- Bush: "One of the worst national disasters"
- Extra 10,000 National Guard troops called up

FULL STORY

- Watch: [Heartbreaking trip home](#) | [Searching for bodies](#)
- Watch: [How the levees broke](#) | [Saved by a tree](#)
- Special Report: [Trail of destruction](#) | [Gallery](#) | [Levee system](#)
- Citizen Journalist: [Your e-mails](#) | [Gallery](#) | [Share your story](#)
- Hotlines: [Where to get, give help](#) | [Tell people you're safe](#)

MORE NEWS

[Most Popular](#)

- [CNN exclusive: Police unable to aid sick woman](#)
- [Babies evacuated from ICU](#) | [Watch](#)
- [Public health threat looming](#) | [Watch](#)
- [Superdome evacuees head to Houston](#) | [Watch](#)
- [Huge sandbags planned for levee leaks](#) |

WATCH FREE VIDEO

[Browse/Search](#)[Desperate pleas](#)
(5:38)[Armed looting in New Orleans](#)
(2:30)[Now in The News:](#) Your quick news update

Featured Video

More Video Picks

Requested Date: 1996

2010 06/21/2010

CNN.com

Member Services

[International Edition](#) |  Netscape

▶ MAKE CNN.com YOUR HOME PAGE

SEARCH

THE WEB CNN.com

SEARCH

Powered by  YAHOO! search

Home Page

World

U.S.

Weather

Business at CNNMoney

Sports at SL.com

Politics

Law

Technology

Science & Space

Health

Entertainment

Travel

Education

Special Reports


Video **NOW FREE**

Autos with Edmunds.com

SERVICES

E-mail Newsletters

Your E-mail Alerts

RSS 

CNNtoGO

Contact Us

Updated: 12:30 p.m. EDT (16:30 GMT), September 1, 2005

DESPERATION AND DANGER



Storm victims are stuck without food or water at the New Orleans Convention Center.

Boat rescues suspended

- Boat rescuers asked to stand down due to dangers
- Huge crowd spotted at New Orleans convention center
- Gunfire, looting, small fires disrupt Superdome evacuation
- Citizens holed up in high-rises throng to buses
- Major buildings "pancaking" in Mississippi

DEVELOPING STORY

- **Watch:** ['Nobody in control'](#) | [Fires at Superdome](#)
- **Watch:** [Newborns rescued](#) | [Heartbreaking trip home](#)
- **Special Report:** [Trail of destruction](#) | [Gallery](#) | [Levee system](#)
- **Citizen Journalist:** [Your e-mails](#) | [Gallery](#) | [Share your story](#)
- **Hotlines:** [Where to get, give help](#) | [Tell people you're safe](#)

MORE NEWS

[Most Popular](#) ▶

- [Bush tells victims: 'A lot of help coming'](#)
- [CNN/Money: Bush: 'Zero tolerance' on gouging](#)
- [Town wiped off the map by Katrina](#)
- [CNN exclusive: Police unable to aid sick woman](#)
- [Spain MP among stranded in New Orleans](#)
- [Federal rescue teams arriving](#)

WATCH FREE VIDEO

[Browse/Search](#)

FEMA suspends rescue operations
(2:34)



Anger and outrage
(3:38)



[Now In The News \(11:48 a.m. ET\):](#) Your quick news update

Featured Video

More Video Picks

Requested Date: 1996


2010 06/21/2010

CNN.com

+

CNN.com

Member Services

[International Edition](#) |  Netscape

▶ MAKE CNN.com YOUR HOME PAGE

SEARCH

THE WEB CNN.com

SEARCH

Updated: 12:29 a.m. EDT (04:29 GMT), September 3, 2005

AID IN, PEOPLE OUT

This image is
no longer available

Some hope returns to New Orleans

- Food and medicine arrives for desperate survivors
- 40,000 patients airlifted from hospitals
- Bush sees destruction – and meets angry mayor
- But thousands still stranded in homes and centers

DEVELOPING STORY

- **Watch:** [Fires and floods](#) | [Aid rolls in](#)
- **Watch:** [Bush: It seems dark right now](#) | [The military mission](#)
- **Special Report:** [Hurricane Katrina](#) | [Street-by-street](#)
- **Citizen Journalist:** [Your e-mails](#) | [Gallery](#) | [Share your story](#)
- **Hotlines:** [Where to get, give help](#) | [Tell people you're safe](#)
- **CNN TV:** [The struggle for New Orleans, on CNN](#)

Military personnel distribute food and water Friday at the convention center in New Orleans.

MORE NEWS

[Most Popular](#) ▶

- [What was said vs. What was happening](#)
- [Exhausted evacuees pack airport](#) | [Watch](#)
- [On the Scene: Hopelessness in Mississippi](#)
- [Lt. Gen. Honore a 'John Wayne dude'](#) | [Watch](#)
- [Drying New Orleans could take months](#) | [Watch](#)
- [Bush admits relief efforts 'not enough'](#) | [Watch](#)

WATCH FREE VIDEO

[Browse/Search](#)

[Role of race questioned](#)
(2:14)



[Medical nightmare](#) (1:49)



[Now In The News:](#) Your quick news update

Featured Video


More Video Picks

Requested Date: 1996

2010 06/21/2010

CNN.com

Member Services

[International Edition](#) |  Netscape

▶ MAKE CNN.com YOUR HOME PAGE

SEARCH

THE WEB CNN.com

SEARCH

Powered by 

Home Page

World

U.S.

Weather

Business at CNNMoney

Sports at SL.com

Politics

Law

Technology

Science & Space

Health

Entertainment

Travel

Education

Special Reports


Video **NOW FREE**

Autos with Edmunds.com

SERVICES

E-mail Newsletters

Your E-mail Alerts

RSS 

CNNtoGO

Contact Us

Updated: 6:08 p.m. EDT (22:08 GMT), September 4, 2005

HELICOPTER HEROES

BREAKING NEWS



A U.S. Air Force rescuer is dropped onto a rooftop to help trapped Katrina victims.

Rescuers going roof-to-roof

- AP: Army engineers say police shoot dead its contractors
- Helicopters dropping supplies, picking up survivors
- Convention center mostly evacuated
- Mayor: Police, firefighters traumatized

DEVELOPING STORY

- Watch: [Coast Guard rescuers](#) | [Some refuse to leave](#)
- Watch: [Mississippi wipe out](#) | [Mayor: Officers traumatized](#)
- Hotlines: [How to get, give help](#) | [Tell people you're safe](#)
- Citizen Journalist: [Your e-mails](#) | [Gallery](#) | [Share your story](#)
- Special Report: [Timeline](#) | [New Orleans: Block by block](#)
- On CNN TV: [Dr. Phil on healing after Katrina, 9 p.m. ET](#)

MORE NEWS

[Most Popular](#) ▶

- [Chief Justice Rehnquist dies at 80](#) | [Watch](#)
- [Manning brothers team up for relief](#) | [Watch](#)
- [New Orleans couple weds in Mississippi shelter](#)
- [Mobile hospital stopped by red tape](#)
- [Misery has company at Mississippi motels](#)
- [Evacuees anguished at leaving pets behind](#)

WATCH FREE VIDEO

[Browse/Search](#)[Misery in Mississippi](#)

(2:16)

[Musical tribute to New Orleans](#)

(3:08)

[Now in The News \(5:52 p.m. ET\):](#) Your quick news update

Featured Video

More Video Picks

Archiving Moves At Hurricane Speed, Most News Stories Move Faster

Requested Date: 1996

2010 06/21/2010

CNN.com - Breaking News, U.S., W...



AMERICAN MORNING SITUATION ROOM LOU DOBBS TONIGHT PAULA ZAHN NOW LARRY KING LIVE ANDERSON COOPER 360° NANCY GRACE SCHEDULES

Member Center: [Sign In](#) | [Register](#)

International Edition

SEARCH THE WEB CNN.COM Search powered by YAHOO! SEARCH

Home World U.S. Weather Business Sports Analysis Politics Law Tech Science Health Entertainment Offbeat Travel Education Specials Autos I-Reports

UPDATED: 6:52 a.m. EDT, April 16, 2007

Make CNN Your Home Page



Nor'easter slams East Coast

As an oncoming nor'easter dumped heavy rains along the mid-Atlantic coast, Mayor Michael Bloomberg urged New Yorkers to use mass transit today and take other precautions. Commuter train service between upper Manhattan and Connecticut was interrupted Sunday night because of flooding.

FULL STORY

- [What's a nor'easter?](#) | [Storm on the beach](#)

LATEST NEWS

TOP STORIES MOST POPULAR

- **Fortune:** [Newest Fortune 500 rankings](#) | [Video](#)
- **Police:** [Airline pilot on cocaine, driving wrong way](#)
- [Al-Sadr pulls his ministers from Iraq government](#)
- [Search intensifies for U.S. aid worker](#)
- [Madonna back in Malawi to adopt?](#)
- **SI.com:** [Jackie Robinson tributes](#) | [Video](#)
- [Numbers add up to difficult tax year](#)
- [Iraqis turn to TV psychic for reassurance](#)
- [Investigators try to identify 8 skeletons](#)
- [Anti-Kremlin crowd clashes with police](#) | [Video](#)
- [Surfer girl attacked by sea lion](#)
- [Celebrity foot-in-mouth club gets new member](#)
- **CNN Wire:** [Latest updates on world's top stories](#)

WATCH VIDEO

MOST POPULAR BEST VIDEO

1. [The year of celebrity slurs](#) (2:31)

Don Imus' outburst is the latest in a string of celebrity slurs. CNN's Sibila Vargas reports. (April 14)



advertisement

live and commercial free video [Sign in](#) | [Help](#)

LIVE WHAT IS PIPELINE?

CNN International

Live newscasts and in-depth programs from a global perspective, plus the Best of Pipeline.





BLOODBATH IN CLASS

BREAKING NEWS



Student: There was blood everywhere

- 32 killed, 29 injured by lone gunman at Virginia Tech
- All I can tell you is he's a male, says police chief
- Killer reportedly dressed in Boy Scout-type outfit
- Student: I was one of only four that made it out
- It is the deadliest shooting rampage in U.S. history

DEVELOPING STORY

- [Virginia Tech shootings](#) (**LIVE**) | [Campus map](#)
- [Students describe their 'College Columbine'](#)
- [Cops draw guns, hunt shooter](#) | [Gallery](#)
- **I-Report:** [Gunshots captured on a cell phone](#)
- **Witness:** [We were all frightened](#) | [Send your videos](#)

advertisement

live and commercial free video [Sign in](#) | [Help](#)

LIVE WHAT IS PIPELINE?

(LIVE) LIVE BREAKING NEWS
Police and VA Tech officials hold a

LATEST NEWS

TOP STORIES

MOST POPULAR

- [Officials thought killer left campus after first shooting](#)
- [Student captures video of shooting](#) | Video

WATCH VIDEO

MOST POPULAR

BEST VIDEO

1. [Gunfire on university campus](#) (5:03)
A student describes gunfire on the

Requested Date: 1996

2010 06/21/2010

CNN.com - Breaking News, U.S., W...



AMERICAN MORNING SITUATION ROOM LOU DOBBS TONIGHT PAULA ZAHN NOW LARRY KING LIVE ANDERSON COOPER 360° NANCY GRACE SCHEDULES

Member Center: [Sign In](#) | [Register](#)

International Edition

SEARCH THE WEB CNN.COM Search powered by YAHOO! SEARCH

Home World U.S. Weather Business Sports Analysis Politics Law Tech Science Health Entertainment Offbeat Travel Education Specials Autos I-Reports

UPDATED: 3:17 a.m. EDT, April 17, 2007

Make CNN Your Home Page

STUDENTS SLAUGHTERED

advertisement



Students attend a Mass in Blacksburg, Virginia.

Police have preliminary ID of gunman

- Police not releasing name of Virginia Tech gunman
- Gunman massacres 32 at two Virginia Tech sites
- Some students jumped from windows to escape
- Professor is among dead at academic hall
- It is the deadliest shooting rampage in U.S. history

FULL STORY

- [Horrific day ends with sleepless night](#) | [Map](#)
- [Student: He shot almost the whole class](#)
- [Time.com: Too few warnings?](#) | [Gallery](#)
- [I-Report: Gunshots captured on a cell phone](#)
- [Witness: We were all frightened](#) | [Your photos](#)
- [Special Report: Massacre at Virginia Tech](#)

LATEST NEWS

TOP STORIES

MOST POPULAR

- [Officials thought killer left campus after first shooting](#)

WATCH VIDEO

MOST POPULAR

BEST VIDEO

- 1. [Eyewitness describes shooter](#) (1:23)

live and commercial free video

[Sign in](#) | [Help](#)

LIVE

WHAT IS PIPELINE?

CNN International

Most of the Story, at Least as Conveyed by cnn.com, is Missing...

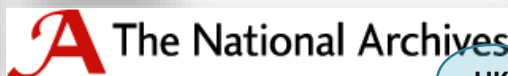
in this case, you can reconstruct the events with
http://en.wikipedia.org/wiki/Virginia_Tech_massacre_timeline

How Much of The Web Is Archived?

Public Archives, ca. Late 2010 / Early 2011

Three categories of archives

- Internet Archive
- Search engine
- Other archives



UK

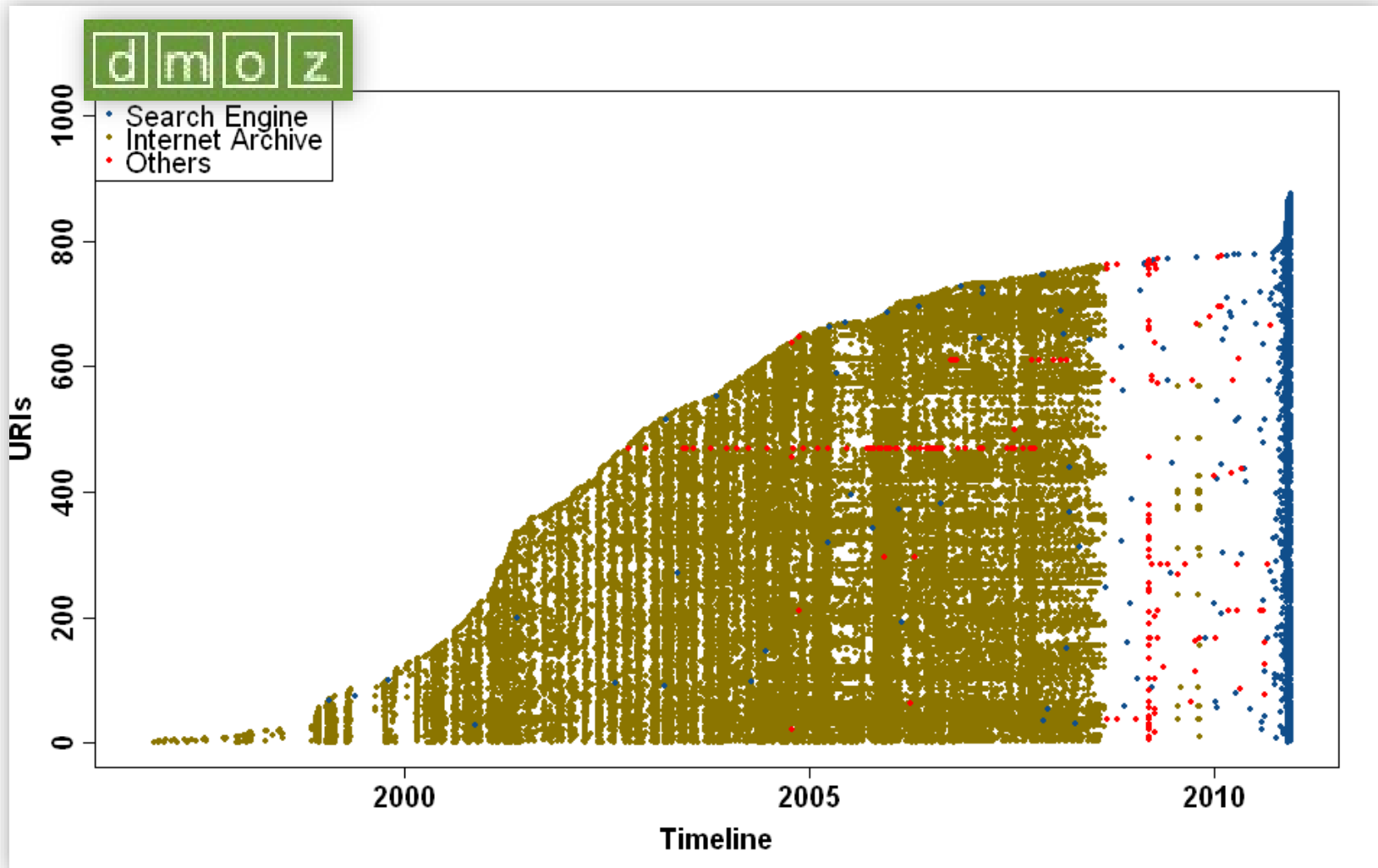


US

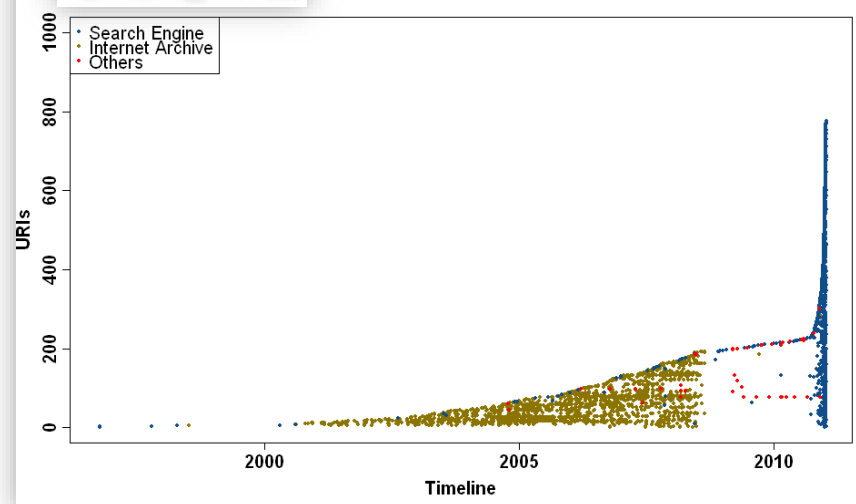
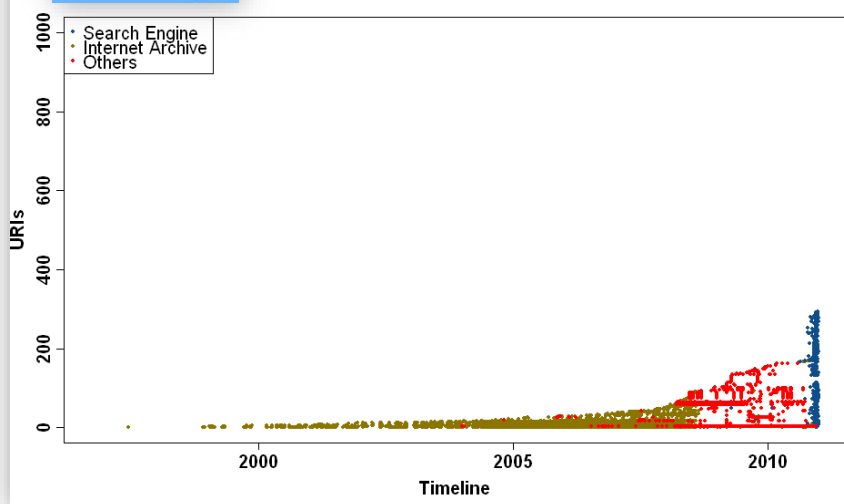
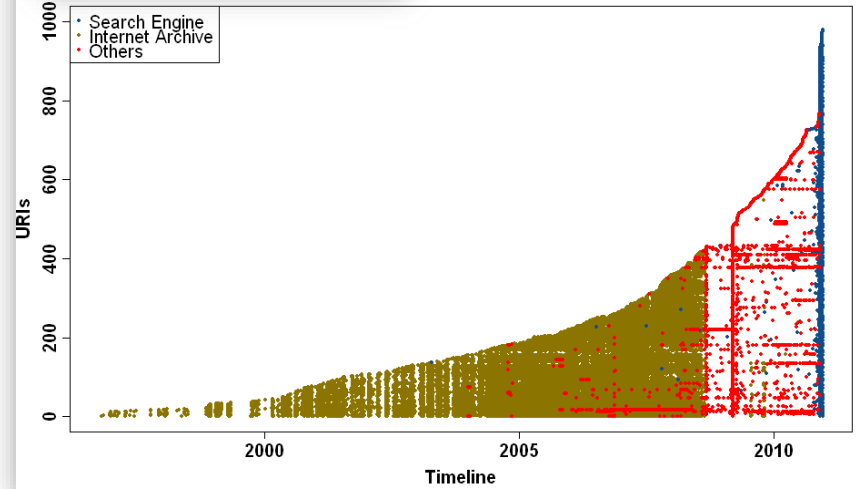
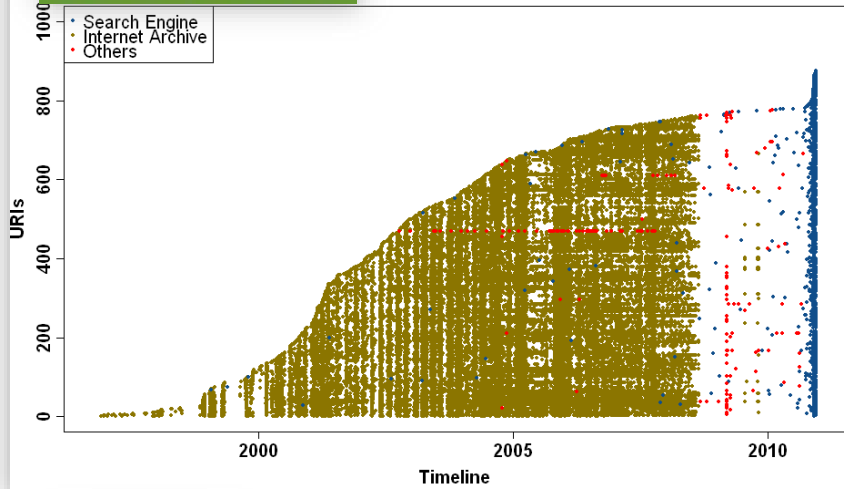
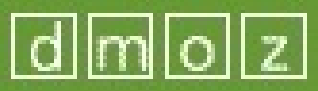


See also: <http://arxiv.org/abs/1212.6177>

1000 URIs Ordered by First Observation Date



See also: <http://ws-dl.blogspot.com/2011/06/2011-06-23-how-much-of-web-is-archived.html>



see also: <http://ws-dl.blogspot.com/2013/04/2013-04-19-carbon-dating-web.html>

How Much of the Web is Archived? It Depends on Which Web...

	Including SE cache	Excluding SE Cache	2013
	90%	79%	95%
	67%	68%	92%
	35%	16%	23%
	88%	19%	26%

Changes since 2011: no more free SE APIs; greatly reduced IA quarantine period; 15 public web archives

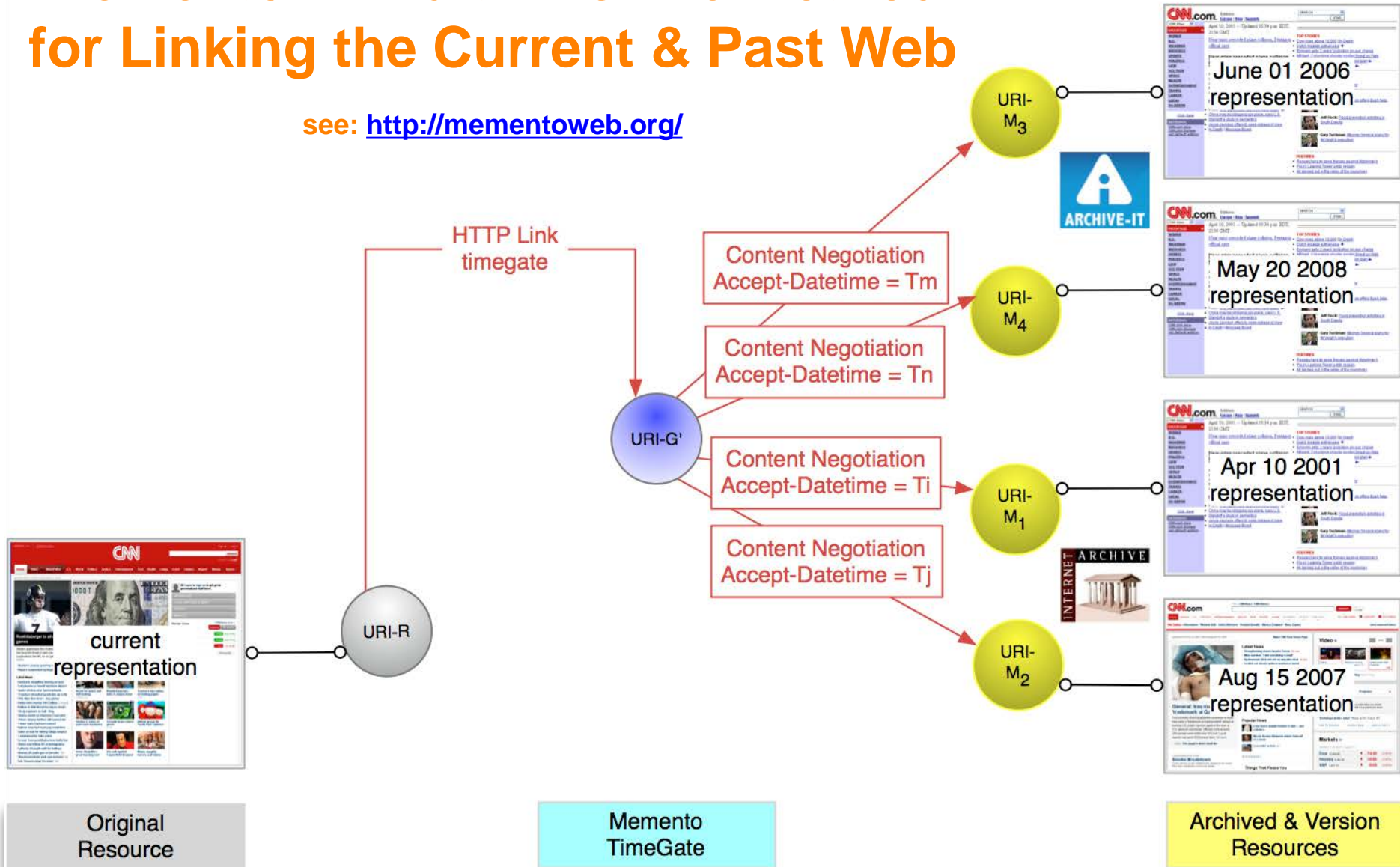
Long Tail of Archives



see also: http://www.cs.odu.edu/~mln/pubs/tpdl-2013/paper_134.pdf

Memento: A Multi-Archive Method for Linking the Current & Past Web

see: <http://mementoweb.org/>



Original Resource

URI-G'

Memento TimeGate

URI-M₃



URI-M₄



URI-M₁



URI-M₂



Archived & Version Resources

So It's Been Archived, What Can Go Wrong?

Temporal Drift



August 27, 2005
11:16 a.m. EDT
[link](#)

Temporal Drift: Now 3 Hours in the Past



August 27, 2005
11:16 a.m. EDT
[link](#)

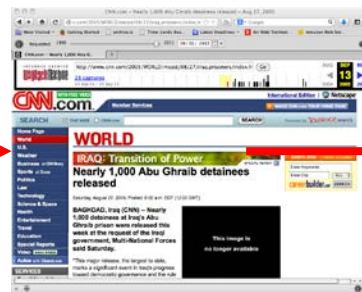


August 27, 2005
8:00 a.m. EDT
[link](#)

Temporal Drift: Now 17 Days in the Future



August 27, 2005
11:16 a.m. EDT
[link](#)



August 27, 2005
8:00 a.m. EDT
[link](#)



September 13, 2005
8:12 a.m. EDT
[link](#)

Temporal Drift: Now 23 (or 6) Days in the Future



August 27, 2005
11:16 a.m. EDT
[link](#)



August 27, 2005
8:00 a.m. EDT
[link](#)



September 13, 2005
8:12 a.m. EDT
[link](#)



September 19, 2005
8:25 a.m. EDT
[link](#)

10+ clicks in the archive results in median drift of ~45 days (standard UI) or ~15 days with Memento. ~2% of the sessions have drift of > 1 year. see: <http://www.cs.odu.edu/~mln/pubs/jcdl-2013/jcdl93-ainsworth.pdf>

**We Call the Drift in a Single Page
"Temporal Spread"**

2005-05-14
01:36:08

web.archive.org/web/20050514013608/http://www.cs.odu.edu/

INTERNET ARCHIVE WaybackMachine 692 captures

Old Dominion UNIVERSITY A to Z Index Directories Search ODU GO

College of Sciences

COMPUTER SCIENCE

Graduate

- Program Information
- Course Information

Undergraduate

- Program Information
- Course Information
- Advising Information

Student Resources


- Admissions
- Financial Aid
- Summer Schedule & Books
- Fall Schedule & Books
- Employment Opportunities
- Calendars

Directory

- Faculty
- Staff


Online Services

- Account Creation
- Squirrel Mail
- Exchange Mail
- Notes Mail
- Reserve Conference Room
- Leo Online




Featured Student

Joan A Smith
Ph.D Student
Awarded the Zipf Fellowship



Featured Alum

James . Cheng
BS in CS
Class of 1982



Upcoming Events

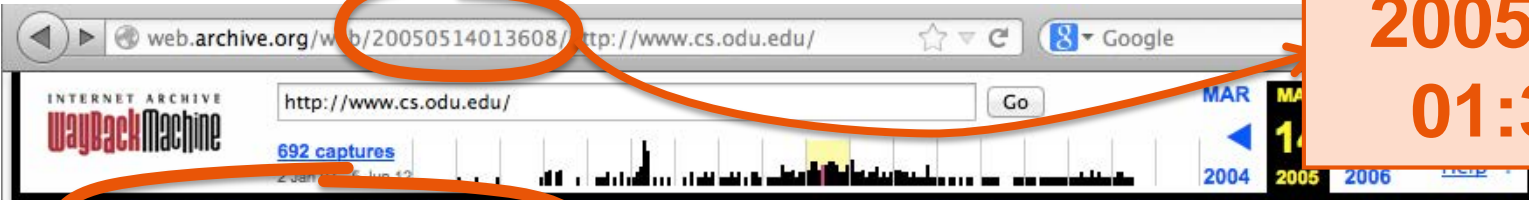
Computer Science Colloquium, Friday May 14 at 10:00AM
Speaker: Dr. Allen Fisher from Carnegie Mellon [\[More\]](#)

CS Dept News

Jessica Crouch will be joining the computer science faculty as an assistant professor in the 2005 fall semester. Most

About

- Welcome from the Chair
- Mission Statement
- Student Goals
- Bylaws
- Organization
- Facilities
- FAQ



2005-05-14
01:36:08

+9 days



+18 days

Featured Student

+7 months



+18 days

+2.1 years

using current policies, only ~76% of pages are complete, with a mean temporal spread of ~1 year, and with ~5% of pages having a *temporal violation*. (submitted for publication)

**Sometimes the Live Web
"Leaks" Into the Archive...**

Sept 3, 2008

updated 4:24 p.m. EDT, Wed September 3, 2008

Make CNN Your Home Page

Republican National Convention 2008



Palin's path from city hall to governor's mansion

When she played basketball in high school, Sarah Palin, the soon-to-be Republican vice presidential nominee, earned the nickname "Sarah Barracuda" for her fierce competitiveness. In the 21 months she has served as governor of Alaska, no one is suggesting she's lost her fighting edge. full story »

- Palin ready to lead? | Analysts: Her task
- Palin to call for reform in RNC speech
- Will her gender sway women to Palin?

HEALTH MAGAZINE

Secrets to a healthy heart

Latest News

- Poll measures race in three key states 19 min
- Dems blast Lieberman, say he lied to delegates
- Ticker: McCain greets Palin's daughter, fiancé
- Martin: Keep politics out of Bristol Palin issue
- Biographer: America, meet Sarah Palin
- iReport.com: Can a mom of 5 be VP?
- Cafferty: Should McCain consider different VP?
- CNNMoney: Auto sales plunge
- Gunman's bloody trail leads to six bodies
- Caylee's grandma disputes evidence
- Nagin: Residents won't be turned away
- CNNMoney: Gulf oil production scrambling back
- Hanna roams Caribbean, may hit U.S.
- Pakistan protests 'coalition air attack'
- The cartoonist beloved by GIs and regular guys
- 8 dogs die in hot truck during lunch break
- Review: Google's Chrome needs more polish
- New Marilyn Monroe film scenes found
- Beyonce's sister aims for a path of her own
- CNN Wire: Paraguay coup plot alleged

all news from the past 24hrs » | all most popular »

Republican National Convention »

- Bernstein: Democrats better take note
- Bush, McCain still an uneasy alliance
- Interactive: How conventions work
- McCain arrives in Minnesota for convention
- Key players | Trivia | The Forum | In Depth

Viewer's Guide

Video »



Gustav recovery briefing

LIVE



Dogs die during lunch break 1:39



The RNC in St. Paul

LIVE

LIVE: Watch coverage of the RNC & Tropical Storm Hanna

★ FIRST ★ PRESIDENTIAL DEBATE OBAMA | ROMNEY



ADVERTISEMENT

2012

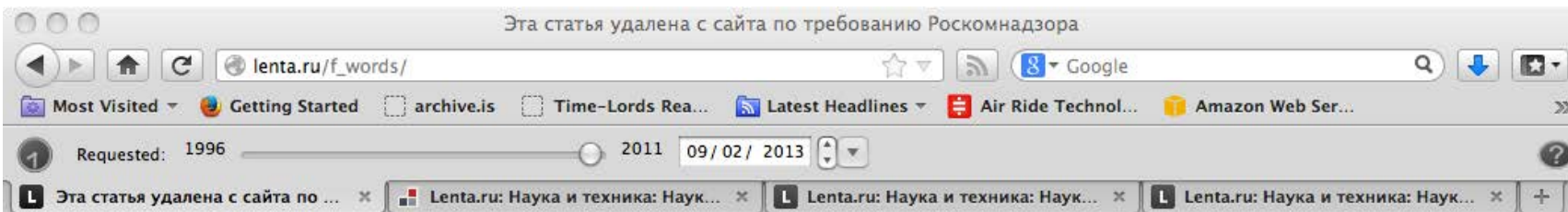
CNN TV »



Palin in prime-time

Quis Archiviet Ipsos Archives?

(thanks to webmaster@archive.is for this example)



LENTA

Эта ст
Роско
№ 051
Ведомств
Письмо Р
сайте сет
данный м
незамедл
<http://lenta.ru>

```
% curl -I http://lenta.ru/articles/2013/04/02/mat/
HTTP/1.1 302 Found
Server: nginx
Date: Tue, 03 Sep 2013 00:15:14 GMT
Content-Type: text/html; charset=utf-8
Connection: keep-alive
Status: 302 Found
Location: http://lenta.ru/f_words/
X-UA-Compatible: IE=Edge,chrome=1
Cache-Control: no-cache
X-Request-Id: bd7caae039d6312c0542cb4ad62f3847
X-Runtime: 0.005474
X-Rack-Cache: miss
```

current page for: <http://lenta.ru/articles/2013/04/02/mat/>

Lenta.ru: Наука и техника: Наука: Запретная филология

web.archive.org/web/20130601231935/http://lenta.ru/articles/2013

Requested: 1996 2011 09/02/2013

Эта статья удалена с сайта по ... Lenta.ru: Наука и техника: Наук... Lenta.ru: Наука и техника: Наук... Lenta.ru: Наука и техника: Наук...

INTERNET ARCHIVE WayBackMachine

13 captures

1 Jun 13 - 10 Jul 13

http://lenta.ru/articles/2013/04/02/mat/

MAY JUN JUL Close

2012 1 2013 2014 Help

Кредит предоставляется ОАО «МТС-Банк» (лицензия Банка России № 2268 от 13. 02. 2012г.). Первоначальный взнос 0% от цены товара, 0% переп. от цены товара, срок кредита 10 месяцев, процентная ставка составляет 21% годовых. ЗАО «Русская Телефонная Компания» предоставляет поку. цены товара, приобретаемого в кредит, это понижает стоимость товара так, что итоговая сумма кредита с учетом суммы процентов по кредит. числе штрафы, в расчете скидки не учитываются) не превышает первоначальной стоимости товара без скидки. Сумма кредита от 1500 до 100 00 участвующий в акции: планшетные компьютеры Samsung Galaxy Tab, Samsung Galaxy Note. Товар сертифицирован. Количество товара ограниче. покупки в кредит по данной акции, уточняйте у сотрудников банка, сотрудников в салонах магазинах МТС (ЗАО «РТК») или на сайте shop.mts.ru 1027739165662, 109147, г.Москва, ул. Воронцовская, д.5, стр.2). Galaxy - Галактина.

LENTA.RU Наука и техника

2 СЕНТЯБРЯ 2013, ПОНЕДЕЛЬНИК, 20:14

14:29, 2 апреля 2013

Запретная филология

«Лента.ру» разобралась в происхождении русского мат

ПОСЛЕДНИЕ НОВО

23:50 В Турции задержа демонстрантов

archive.org version of: http://lenta.ru/articles/2013/04/02/mat/

Lenta.ru: Наука и техника: Наука: Запретная филология

www.peeep.us/98b777a0

Requested: 1996 2011 09/02/2013

08 Jul 2013 14:43 http://web.archive.org/web/20130601231935/http://lenta.ru/articles/2013/04/02/mat/

INTERNET ARCHIVE Wayback Machine

http://lenta.ru/articles/2013/04/02/mat/

1 captures 1 Jun 13 - 1 Jun 13

LENTA.RU Наука и техника


2 СЕНТЯБРЯ 2013, ПОНЕДЕЛЬНИК, 20:14

Архив

14:29, 2 апреля 2013

Запретная филология

«Лента.ру» разобралась в происхождении русского мата



ПОСЛЕДНИЕ НОВОСТИ

- 23:50 В Турции задержали более 900 демонстрантов
- 03:13 США передали Мавритании высокопоставленного члена «Аль-Каеды»
- 00:49 «Бавария» выиграла все кубки сезона
- 01:50 Дети взорвали грузовик в Подмосковье
- 00:33 Французские власти нашли сообщника «тулузского стрелка»

последний матч под

peep.us archived version of archive.org version

Lenta.ru: Наука и техника: Наука: Запретная филология

archive.is/4blgQ

Requested: 1996 2011 09/02/2013

Эта статья удалена с сайта по ... Lenta.ru: Наука и техника: Наук... Lenta.ru: Наука и техника: Наук... Lenta.ru: Наука и техника: Наук...

Archive.is
webpage capture

Saved from	http://www.peep.us/98b777a0	8 Jul 2013 16:44:33
	<small>no other snapshots from this url</small>	
Via	http://web.archive.org/web/20130601231935/http://lenta.ru/articles/2013/04/02/mat/	8 Jul 2013 14:43:00
	<small>all snapshots from this url</small>	
Original	http://lenta.ru/articles/2013/04/02/mat/	1 Jun 2013 23:19:35
	<small>all snapshots from this url</small>	

All snapshots from host lenta.ru
 from host web.archive.org
 from host www.peep.us

Linked from ru.wikinews.org » [Роскомнадзор удалил статьи с Lenta.ru](#)
ru.wikipedia.org » [Железняк, Сергей Владимирович](#)
ru.wikipedia.org » [Русский мат](#)
uk.wikipedia.org » [Російський мат](#)

Text

Image

[download .zip](#)

[report abuse](#)

PIN THIS PAGE:

[Twitter](#) [Facebook](#) [StumbleUpon](#) [Blogger](#) [Reddit](#) [Other](#)

08 Jul 2013 14:43 <http://web.archive.org/web/20130601231935/http://lenta.ru/articles/2013/04/02/mat/>

LENTA.RU

Наука и техника
8 ИЮЛЯ 2013, ПОНЕДЕЛЬНИК, 16:43

Архив

14:29, 2 апреля 2013

Запретная филология

«Лента.ру» разобралась в происхождении русского мата

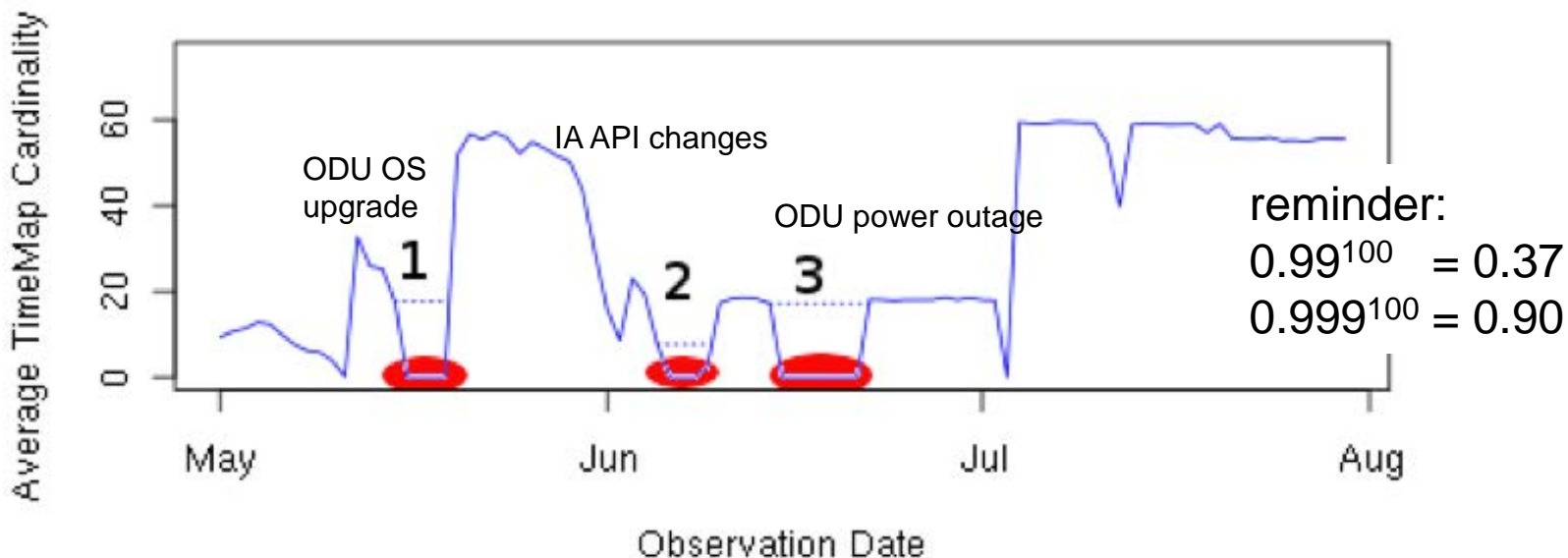
ПОСЛЕДНИЕ НОВОСТИ

23:50 В Турции задержали более 900 демонстрантов

archive.is archived version of peep.us version of archive.org version

Why Make Lots of Copies?

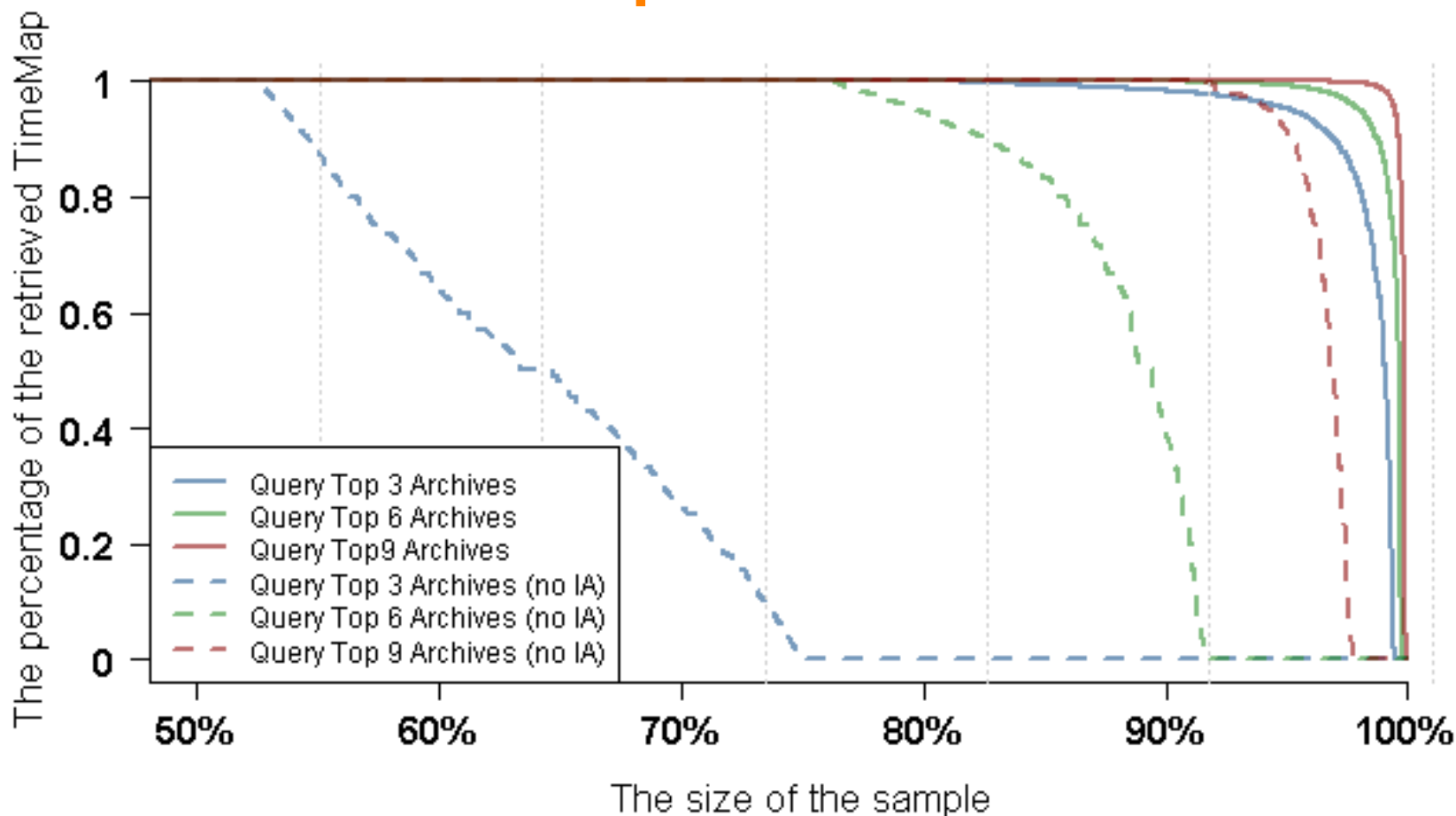
Archives Are Subject to the Same Vagaries of Other Web Sites...



In a perfect world, this graph should be monotonically increasing. Memento allows simultaneous access to more archives, but this also means that at any given time, some archive(s) will be down.

see: <http://arxiv.org/abs/1307.5685>

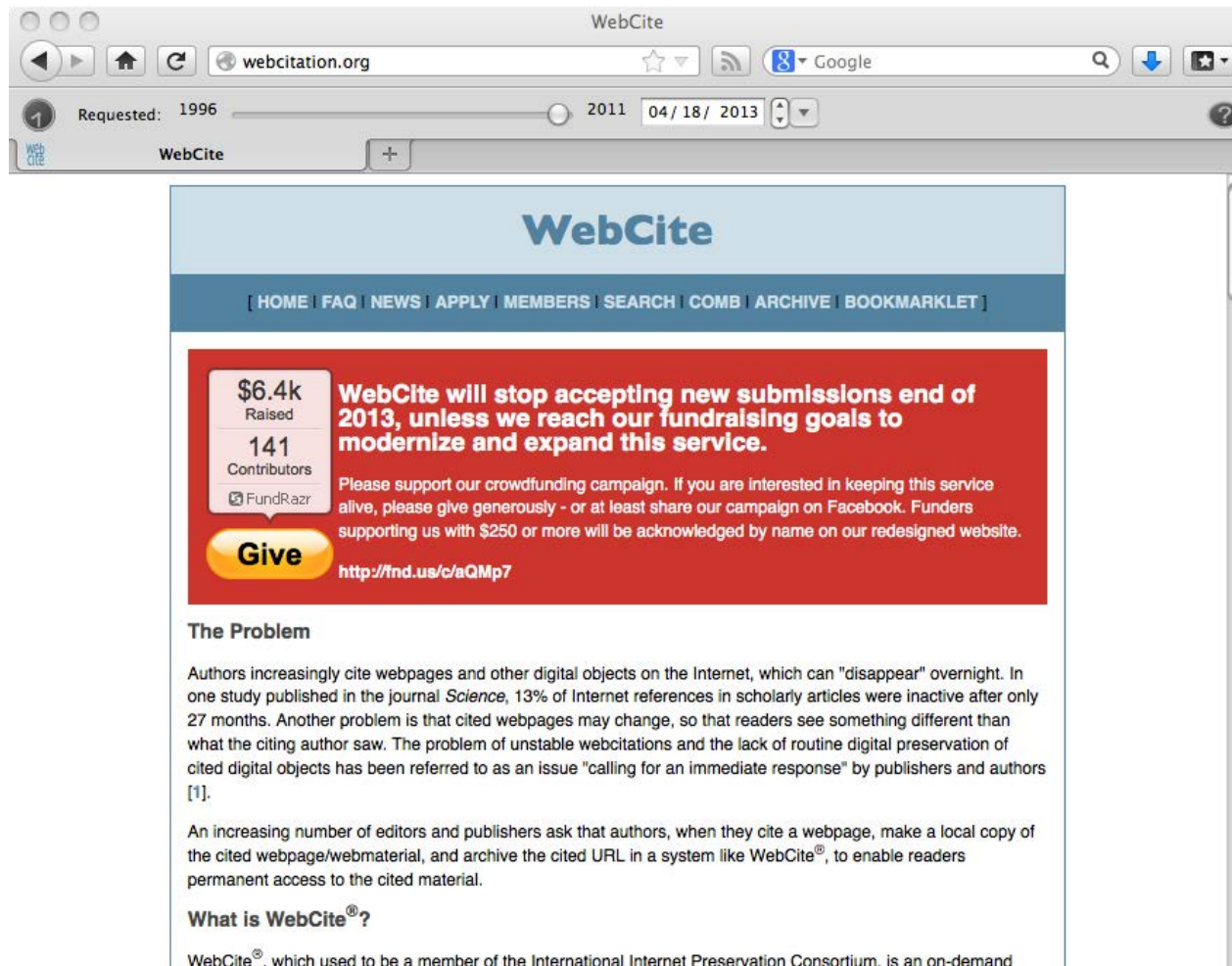
Query Routing: Using Only Top-k Archives for URI Lookup Yields Good Results



Even when there are 100s of archives, we only need to talk to a few.

see: http://www.cs.odu.edu/~mln/pubs/tpdl-2013/paper_134.pdf

What is the Economic Model for Archives?



The screenshot shows a web browser window with the URL webcitation.org. The page features a navigation menu with links for HOME, FAQ, NEWS, APPLY, MEMBERS, SEARCH, COMB, ARCHIVE, and BOOKMARKLET. A prominent red banner contains a fundraising message: "WebCite will stop accepting new submissions end of 2013, unless we reach our fundraising goals to modernize and expand this service." The banner also displays "\$6.4k Raised" and "141 Contributors" and includes a "Give" button with the URL <http://fnd.us/c/aQMp7>. Below the banner, the text "The Problem" discusses the issue of digital preservation and the lack of routine digital preservation of cited digital objects. The text "What is WebCite®?" is also visible.

WebCite

[HOME | FAQ | NEWS | APPLY | MEMBERS | SEARCH | COMB | ARCHIVE | BOOKMARKLET]

\$6.4k
Raised

141
Contributors

FundRazr

Give

<http://fnd.us/c/aQMp7>

WebCite will stop accepting new submissions end of 2013, unless we reach our fundraising goals to modernize and expand this service.

Please support our crowdfunding campaign. If you are interested in keeping this service alive, please give generously - or at least share our campaign on Facebook. Funders supporting us with \$250 or more will be acknowledged by name on our redesigned website.

The Problem

Authors increasingly cite webpages and other digital objects on the Internet, which can "disappear" overnight. In one study published in the journal *Science*, 13% of Internet references in scholarly articles were inactive after only 27 months. Another problem is that cited webpages may change, so that readers see something different than what the citing author saw. The problem of unstable webcitations and the lack of routine digital preservation of cited digital objects has been referred to as an issue "calling for an immediate response" by publishers and authors [1].

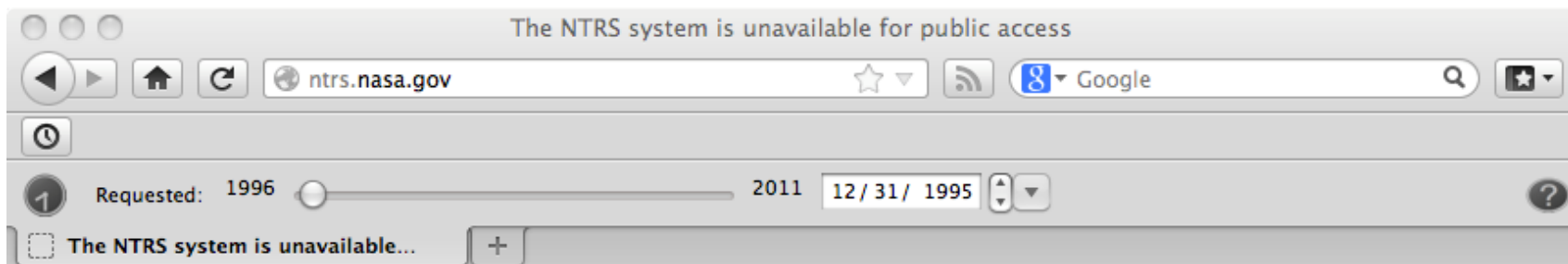
An increasing number of editors and publishers ask that authors, when they cite a webpage, make a local copy of the cited webpage/webmaterial, and archive the cited URL in a system like WebCite®, to enable readers permanent access to the cited material.

What is WebCite®?

WebCite®, which used to be a member of the International Internet Preservation Consortium, is an on-demand

1TB endowment = ~\$4700: <http://blog.dshr.org/2011/02/paying-for-long-term-storage.html>
see also: <http://blog.dshr.org/2011/01/memento-marketplace-for-archiving.html>

Houston, [REDACTED] Here. The Eagle has [REDACTED]



The NASA technical reports server will be unavailable for public access while the agency conducts a review of the site's content to ensure that it does not contain technical information that is subject to U.S. export control laws and regulations and that the appropriate reviews were performed. The site will return to service when the review is complete. We apologize for any inconvenience this may cause.

see also: <http://ws-dl.blogspot.com/2013/03/2013-03-22-ntrs-web-archives-and-why-we.html>

Summary

- We have a cultural mandate to preserve "obsolete data or resources"
 - however, we currently have limited discovery and replay tools
- We need lots of people making several copies of many things
 - Memento is the mechanism for accessing the long tail of archives