Archiving The UK Domain And UK Web Sites

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Topics

- The Extent Of UK Web Space
- Issues In Preserving Web Sites

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re:source The Council for Museums Archives and Libraries
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The Extent Of UK Web Space (1)

How big is UK Web space?

First thoughts:

- Why should this matter?

On reflection there is a need to:

- Estimate the nos. of Web servers
- Estimate the total size of Web sites
- Profile Web sites (e.g. proportion of dynamic or personalised Web sites)
- …

in order to inform discussions on a Web preservation strategy

The Extent Of UK Web Space (2)

Second thoughts:

- Can this be measured?

Some would say:

- The Web is so complex that it is not currently sensible to talk about measuring the Web

Others would argue:

- Measuring the size of TV audiences (or the size of the Universe) is also difficult, but we do do this

Both camps would probably agree that measuring the Web is difficult, and that we are at the early stages of developing statistically valid methodologies for interpreting the figures

Web Estimates – The Difficulties

What Do We Mean By UK Web Space?

- Web sites under the '.uk' top-level domain (which will miss .org, .com, etc.)
- Web sites hosted on servers physically in the UK (which will miss UK Web sites hosted elsewhere)
- Web sites owned by UK citizens and/or organizations
- Web sites that host content published by UK citizens and/or organisations

http://groups.yahoo.com/group/english-parliament-news/
Mailing list archives for campaigners for an English parliament. Web site based in US, with a `.com` domain.

Web Estimates – The Difficulties

Estimating the size and extent of UK Web space poses some challenges.

How Do We Measure UK Web Space?

- Examine DNS for *.uk
- Examine search engines for their coverage of .uk
- Statistical sampling
- Get figures from Web auditing companies or the research community
- …

What Challenges Will We Find?

- What about the "*Invisible Web*" – Web resources which cannot easily be indexed by search engines (dynamic sites, proprietary formats, etc.
- Legal and ethical issues of auditing tools
- …

Web Estimates – Numbers

Netcraft (www.netcraft.com):

- Polls Web servers (over 36 million) and reports on Web server software usage, trends, etc.
- Based in Bath
- They do store information on the .UK Web sites, but information is not reusable (batches of 2,000)

Many thanks to Netcraft for supplying this information

co.uk	2,750,706
org.uk	170,172
sch.uk	16,852
ac.uk	14,124
ltd.uk	8,527
gov.uk	2,157
net.uk	580
plc.uk	570
nhs.uk	215
police.uk	66
mod.uk	26
bl.uk	25
…	
Total	**2,964,056**

Web Estimates – Numbers

OCLC (www.oclc.org):

- Have a Web Characterization Project (WCP)
- In 2001 UK Web sites consists of 3% of total of 8,443,000 (i.e. 253,290 unique Web sites)
- See <http://wcp.oclc.org/> and <http://wcp.oclc.org/stats/explanation.html> (information on sampling methodology)

Web Estimates – Size

You can use search engines to count the numbers of pages indexed by domain

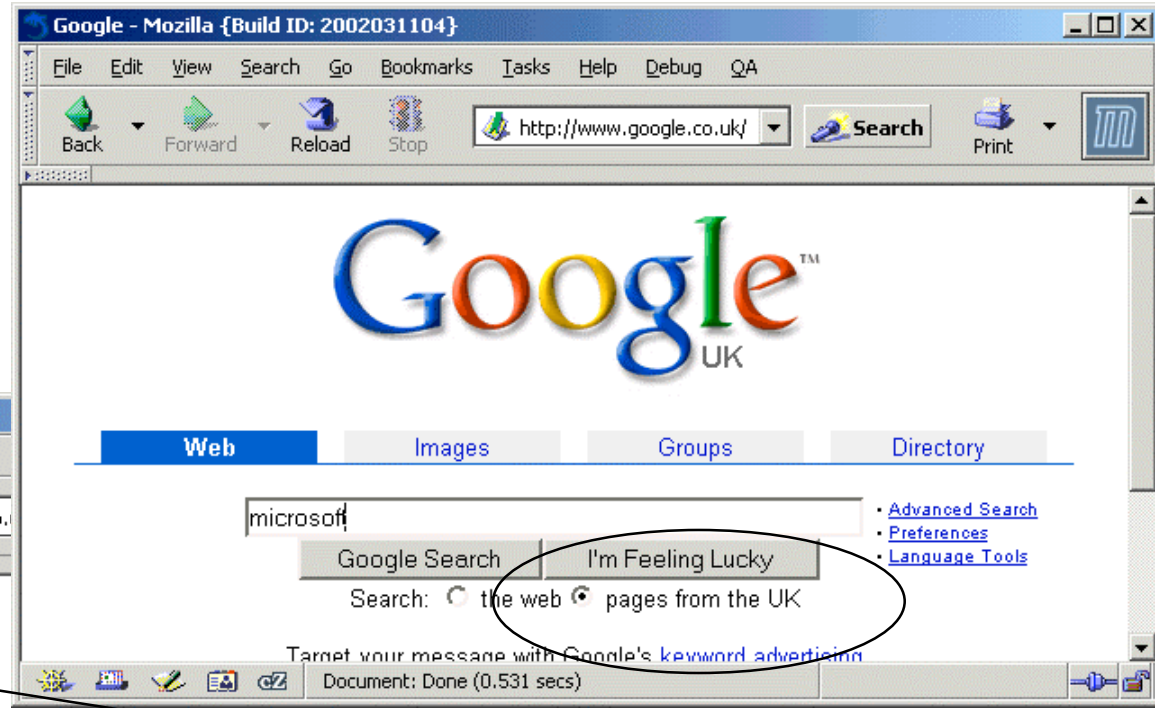
Search Term (AltaVista)	**No. of Pages**	**Search Term (Google)**	**No. Of Pages**
url:*.ac.uk	5,598,905	site:.ac.uk uk	2,080,000
url:*.co.uk	15,040,793	site:.co.uk uk	3,570,000
url:*.org.uk	1,644,322	site:.org.uk uk	898,000
url:*.gov.uk	975,506	site:.gov.uk uk	343,000
url:*.uk	**24,862,369**	site:.uk uk	**4,760,000**

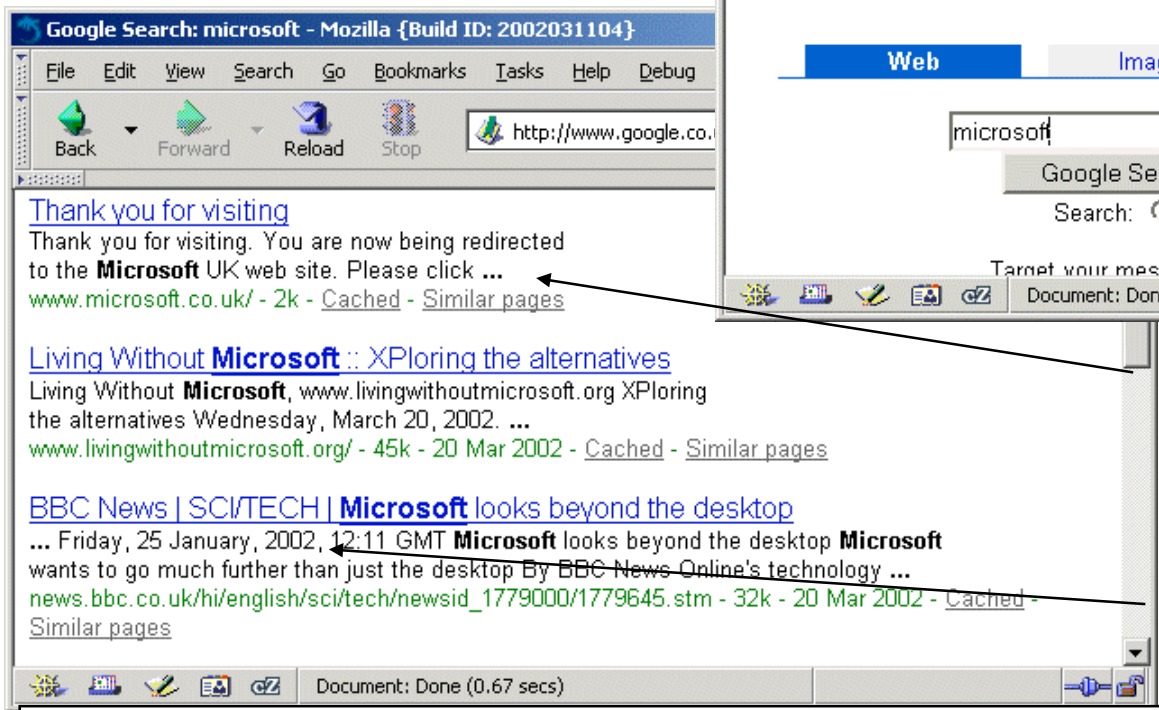
In Google, searching for pages containing term "*uk*" (which may includes *uk* in domain name)

Remember tools index the public and indexable Web and findings are subject to interpretation (dynamic pages, duplicate pages, inconsistencies, fluctuations, etc.)

Google

How does Google define “pages from the UK”?





- What does Google do with redirects?
- Why is `www.livingwithoutmicrosoft.org` in the UK?

“Google uses a mix of heuristics, e.g. domain names, analysing redirects, links from UK directories, etc.”

Size Of The .UK Web

Number of Web servers

253,290 unique Web sites (OCLC WCP figures for 2001)

2,964,056 Netcraft (recent) figures

Number of pages (AV)

24,862,369

Further research can be carried out and the accuracy of these figures discussed, but let's move on

UKOLN Work

UKOLN has:

- Experiences with the BLRIC-funded WebWatch project (development and use of a robot for profiling various Web communities)
- Involvement in other harvesting work (EU-funded DESIRE project, RDN work, etc.)
- Published findings of semi-automated surveys across mainly UK HE Web sites, published in WebWatch column in Ariadne (after WebWatch funding finished and software developer left)
- Carried out pilot study of mirror eLib project Web sites

Archiving eLib Projects

Background

- Surveys of eLib project Web sites and EU Telematics For Libraries (TFL) projects showed that project Web sites were disappearing shortly after the funding had finished!
- A pilot study into the issues of archiving eLib project Web sites was carried out at the request of eLib Central Office.
- See <`http://www.exploit-lib.org/issue7/webwatch/`> for profiles (of 103 TFL projects 11 domains & 12 entry points had gone)
- See <`http://www.ariadne.ac.uk/issuexx/webwatch/`> for profiles of eLib Web sites

Archiving Pilot

What we did:

- Used a Web mirroring tool to mirror a number of the eLib project Web sites
- Observed problem areas
- Reflected on issues which emerged

Our main findings concerned:

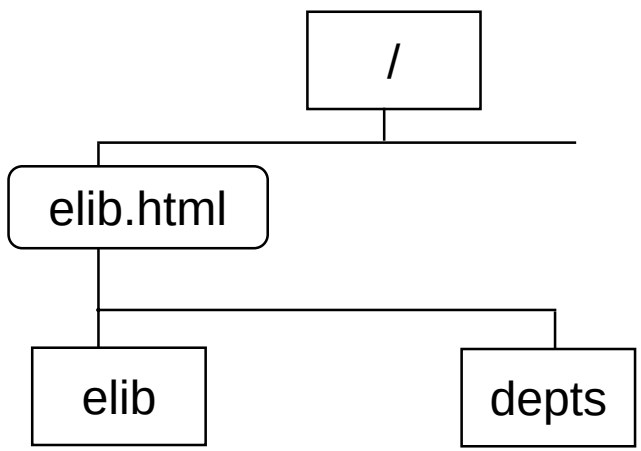
- Setup of the Web services
- Tools used to carry out mirroring
- Purpose of the mirroring exercise
- Legal, ethical, etc. issues

Issues

Issues which the pilot (and related work) revealed included:

- Should Web site be archived if use of robots is banned?
- At times difficult to identify a “site” – project Web site may be confused with entire organisational Web site

Mirroring `foo.ac.uk/elib.html` will result in entire **foo** Web site being mirrored



Issues

Other Issues:

- What are we attempting to preserve:
  - Static documents on Web site
  - Functionality of Web site

Static documents are relatively easy to mirror

If the aim of a Web site is, say, to provide a subject gateway, there may be an expectation that the gateway service will be mirrored. This is not possible with a remote harvesting approach

Issues

Other issues include:

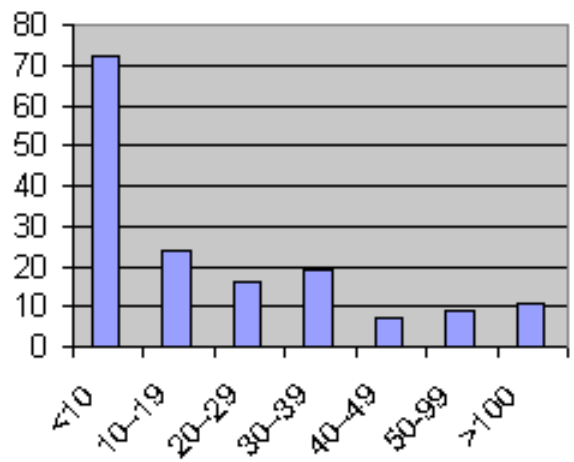
- **Copyright, Data Protection, etc.**
  The mirror included copies of various logos, images, etc
- **Dynamic Web Sites**
  How should dynamic Web pages be preserved?
- **Embedded Objects**
  The mirror included text and images, but not necessarily CSS and JavaScript files
- **Frequency Of Archiving**
  A one-off archive, regular archiving, archiving on demand (after major changes)
- **Absolute URLs, Server Redirects, etc.**
  It is not clear what should be done if redirects are encountered and if absolute URLs are used

Profiling Nos. Of Servers

A survey of the numbers of Web servers in UK Universities was carried out in June 2000 and repeated recently.

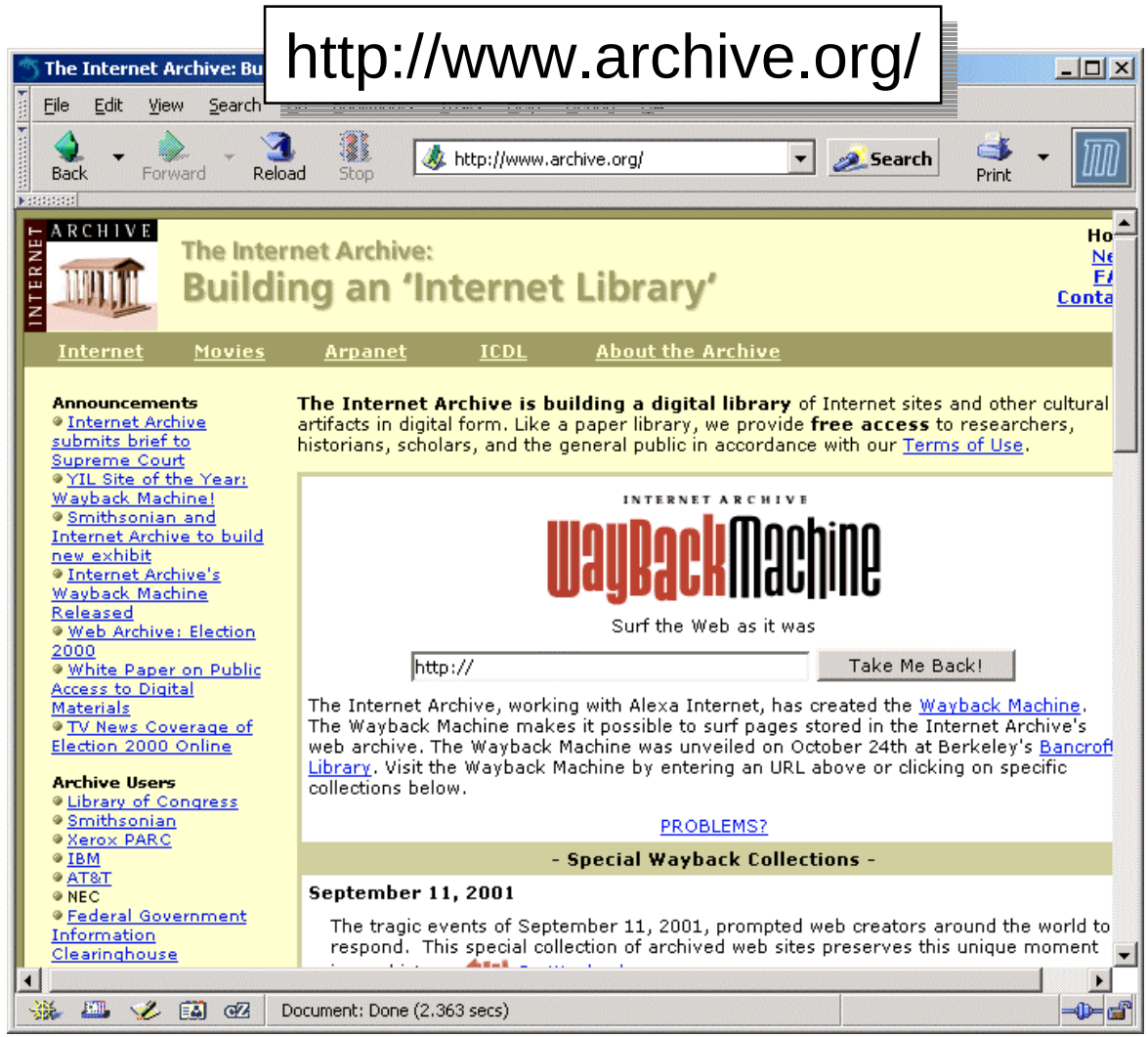
Cambridge has the most number of Web servers (now 369)

The average is 24.2 servers per institution



Internet Archive

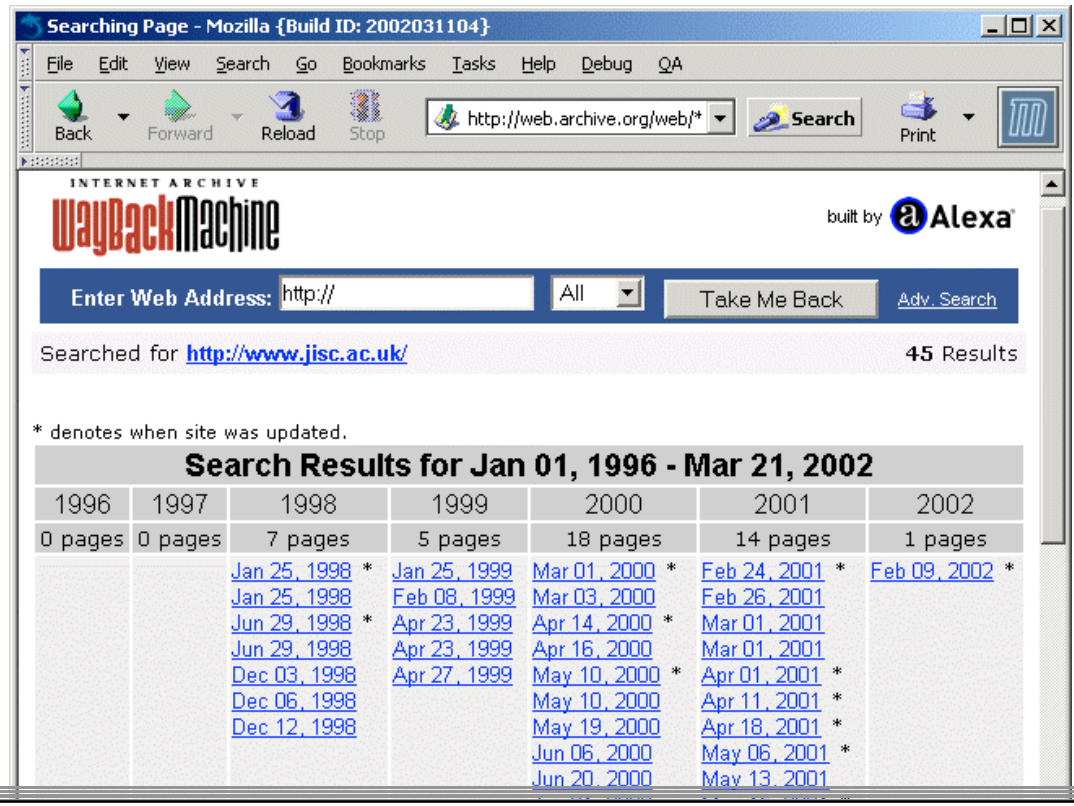
The **Internet Archive** is a “public nonprofit that was founded to build an ‘Internet library,’ with the purpose of offering permanent access for researchers, historians, and scholars to historical collections that exist in digital format.”



Has the Internet Archive solved the problems we experienced?

The Wayback Machine

The Wayback Machine is a public interface to the Internet Archive.

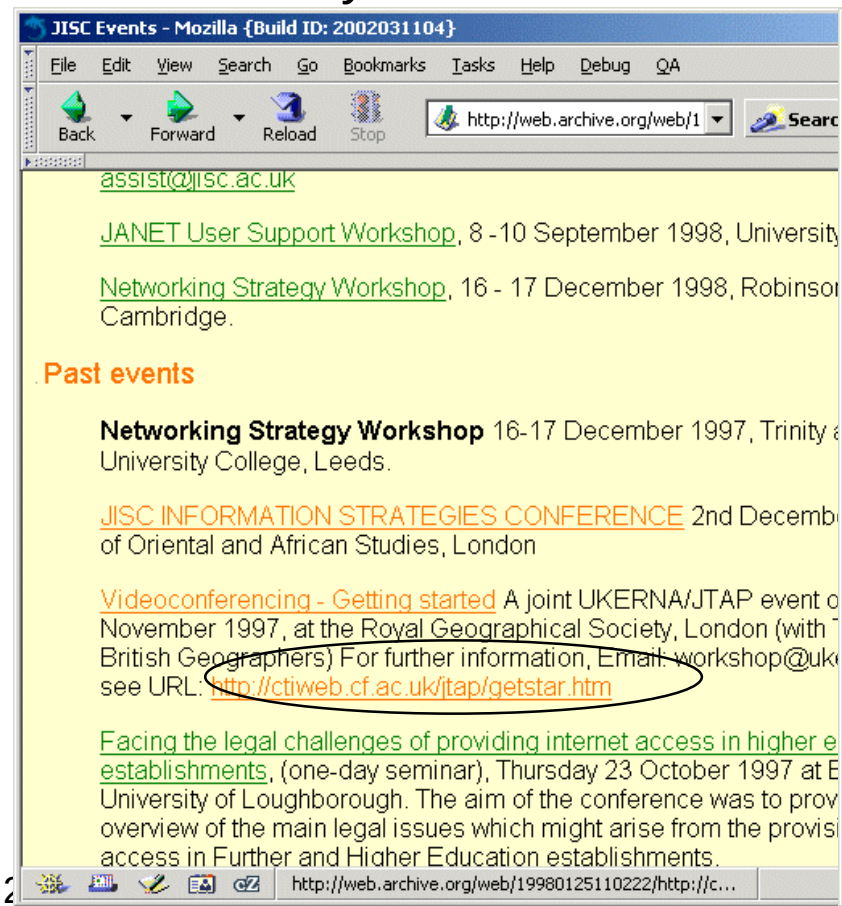


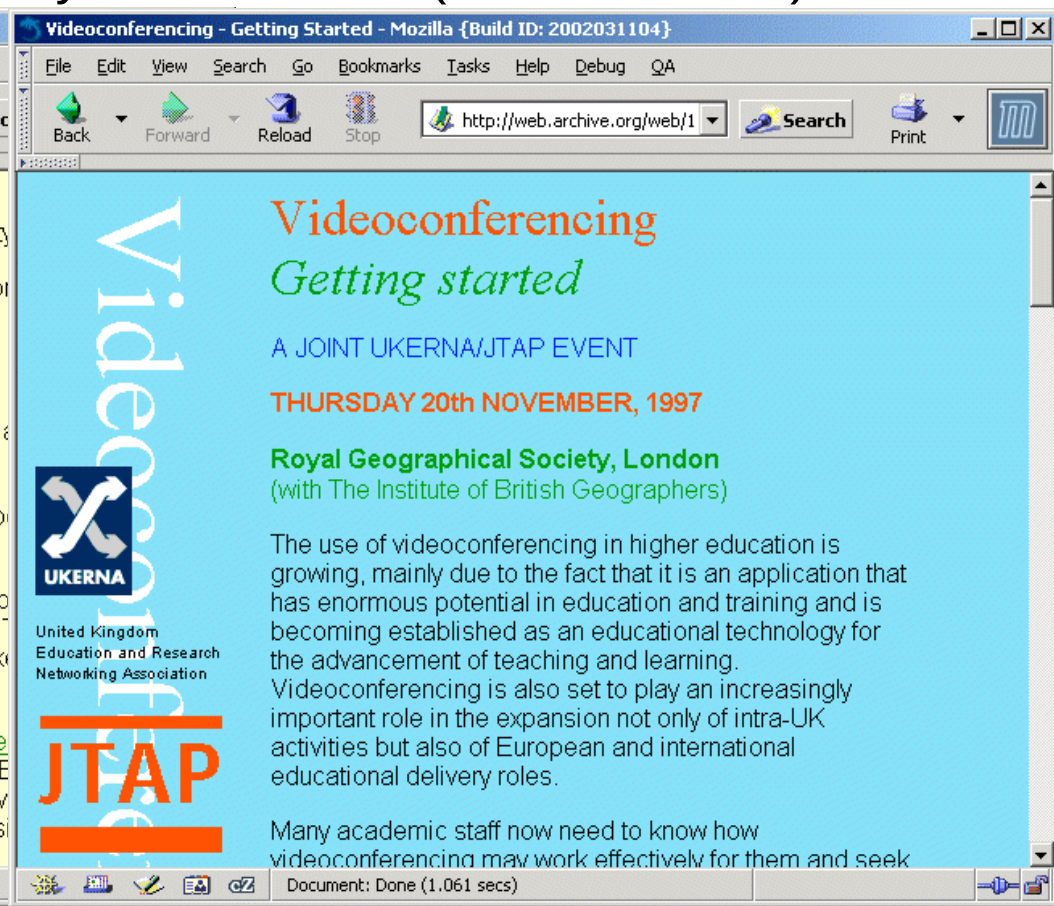
See Greg Notess's article "*The Wayback Machine: The Web's Archive*" in *Online*, Mar/Apr 2002, Vol. 26, No. 2. ISSN 0146-5422
Also at <`http://www.infotoday.com/online/mar02/OnTheNet.htm`>

Using The Wayback Machine

When using the Wayback Machine:

- You get a fairly faithful view (images included, unlike Google's cache)
- You stay in the machine when you follow links (to closest date)





Conclusions

To conclude:

- Measuring the size of the UK Web is difficult
- There is a need to define our terminology
- If measuring is difficult, preserving Web sites that we can't count will be even more difficult!
- Experiences of robot developers, Web indexers, etc. will provide useful information