

UNIVERSITY OF
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Interaction

COMP3220 Web Infrastructure

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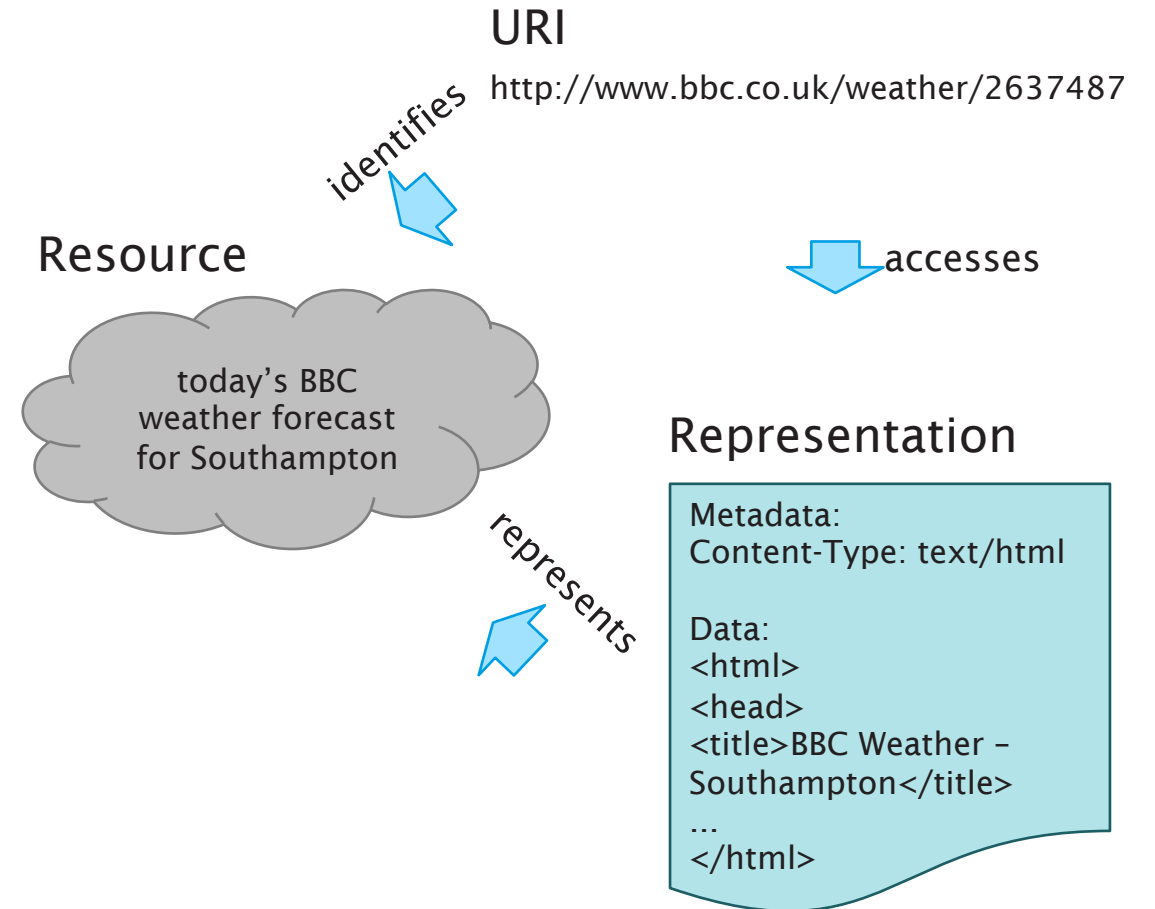
Interaction

Resource representations are transmitted using interaction protocols that specify the exchange of messages

- HTTP, FTP, SOAP, NNTP, SMTP, ...

Messages contain both:

- *data*
(informational content of the message)
- *metadata*
(description of the message or its content)



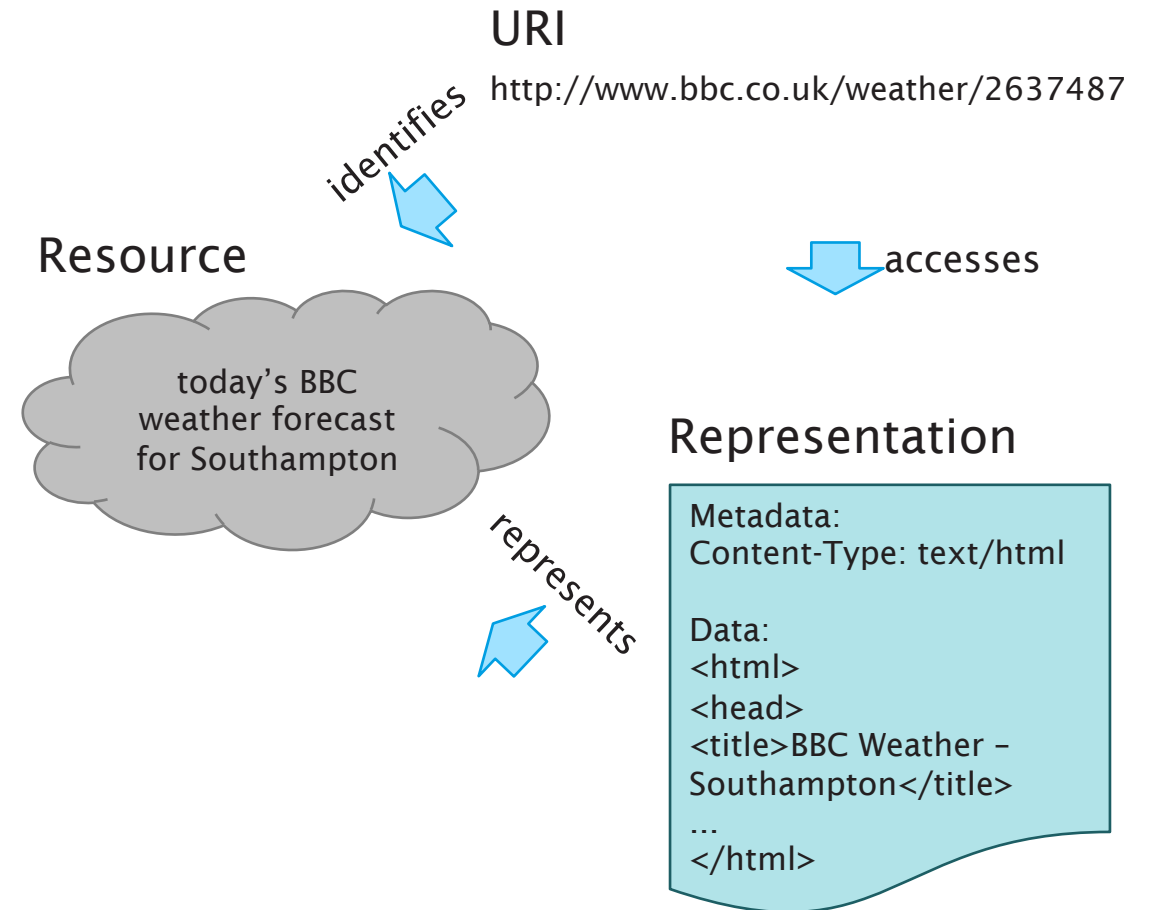
Dereferencing URIs

URIs used to identify resources may indicate protocols that can be used to access those resources

- Though not always: caches, proxies, name resolution services (DNS)
- Many URI schemes define a default interaction protocol

Resource access takes several forms:

- Retrieving a representation of the resource
- Adding or modifying a representation of the resource
- Deleting some or all representations of the resource



Interaction Principles

1. Reuse representation formats

New protocols created for the Web should transmit representations as octet streams typed by Internet media types.

Interaction Principles

1. Reuse representation formats
2. Provide representations

A URI owner should provide representations of the resource it identifies.

There is a general expectation that it should be possible to retrieve a representation of any resource.

Interaction Principles

1. Reuse representation formats
2. Provide representations
3. Retrieval should be safe

Agents do not incur obligations by retrieving a representation.

Put another way, the act of retrieving a representation of a resource should not have any significant side-effects (for example, deleting the resource or changing its state).

Interaction Principles

1. Reuse representation formats
2. Provide representations
3. Retrieval should be safe
4. Reference does not imply dereference

An application developer or specification author should not require networked retrieval of representations each time they are referenced.

Just because you *can* retrieve a representation of a resource, doesn't mean that you *must*.

Example: URIs used to identify document schemas:
`http://www.w3.org/TR/html4/strict.dtd`

Interaction Principles

1. Reuse representation formats
2. Provide representations
3. Retrieval should be safe
4. Reference does not imply dereference
5. Representations should be consistent

A URI owner should provide representations of the identified resource consistently and predictably.

We want our identifiers to be persistent: once an identifier has been associated with that resource, it should continue to refer to that resource indefinitely.

(a matter of policy, not technology)

Further Reading

Jacobs, I. and Walsh, N. (2004) *Architecture of the World Wide Web, Volume One*. W3C Recommendation.

<http://www.w3.org/TR/webarch/>

Fielding, R.T. (2000) *Architectural Styles and the Design of Network-based Software Architectures*. PhD Thesis. University of California at Irvine. Chapter 5.

<http://www.ics.uci.edu/~fielding/pubs/dissertation/top.htm>

Fielding, R.T. and Reschke, J. (2014) *Hypertext Transfer Protocol (HTTP/1.1): Semantics and Content*. RFC7231.

<https://tools.ietf.org/html/rfc7231>

Next Lecture: HTTP