

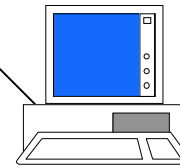
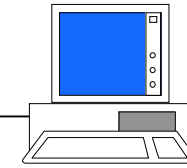
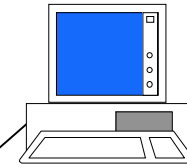
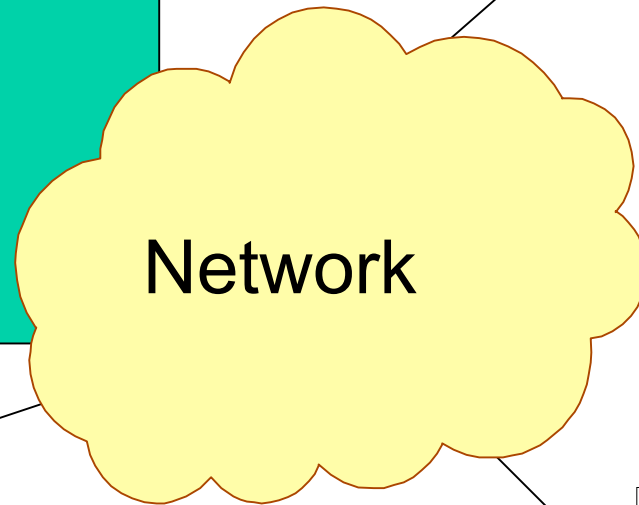
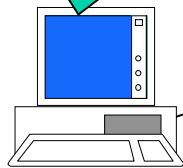
# Interoperability of Information Systems

- Interoperability of Information Systems refers to the ability to share information in distributed computing environments, in particular:
  - To find and get information, when they are needed, independent of physical location.
  - To understand the discovered information, no matter what platform supports them, whether local or remote.

# Interoperability of Information

Example of queries:

Where to find  
climatological data over  
the Antarctica for the  
period 1950-1960?  
How to get them?  
How to use them?



At present, the WMO Programmes do not offer appropriate response in quasi real-time to such queries

# Interoperability of Information Systems

- What is available for the interoperability within the WMO Programmes:
  - Ability to transport data between centres on private networks (e.g. GTS) and through the Internet in a standard way. Examples of standards: Internet Protocol (TCP/IP), File Transfer Protocol (FTP)
  - Ability to routinely distribute data (e.g. GTS)

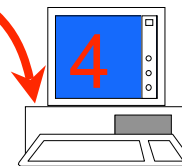
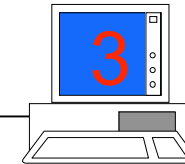
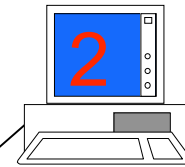
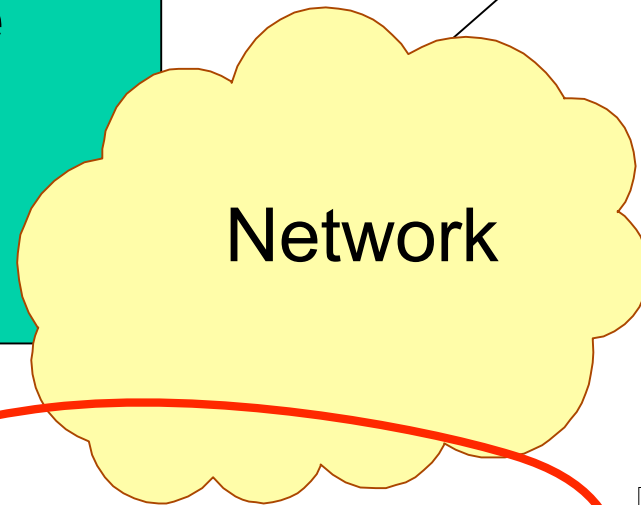
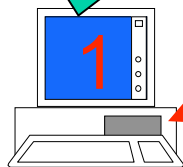
# Interoperability of Information Systems

- What is needed as a first priority to ensure the interoperability within the WMO Programmes
  - Ability to describe the data in a standard way needed for the discovery, the retrieval and the usage of the data
  - Solution : development of a WMO Profile of the ISO 19100 series of standards for defining, describing and managing geographic information, starting with the development of the WMO Core Profile of the ISO Metadata Standard

# Interoperability of Information Systems

**Where to find climatological data over the Antarctica for the period 1950-1960?**

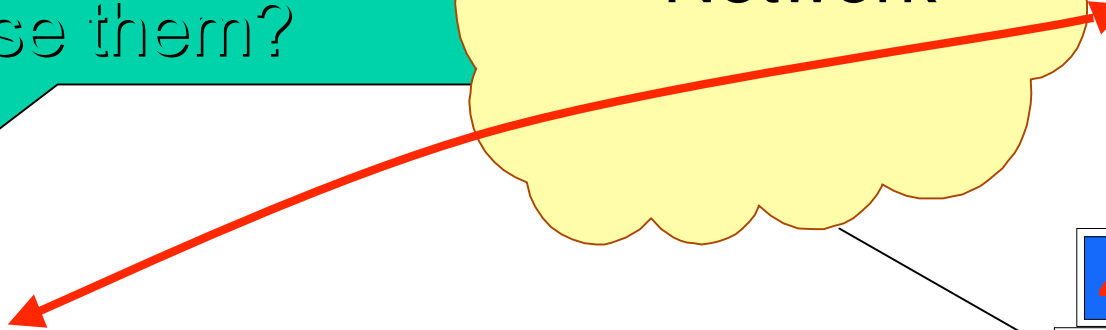
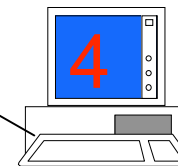
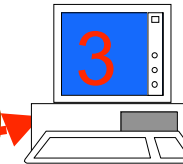
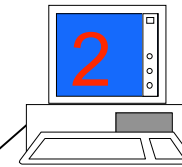
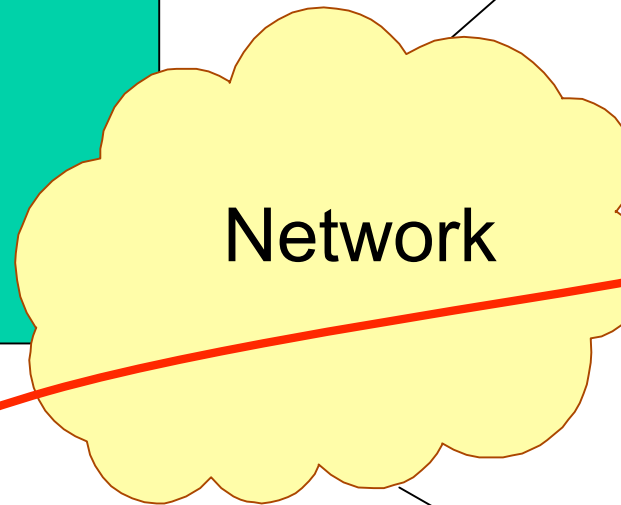
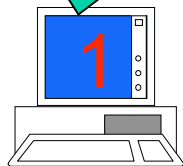
How to get them?  
How to use them?



**Solution: access the catalogue of metadata of 4 providing discovery information for WMO data**

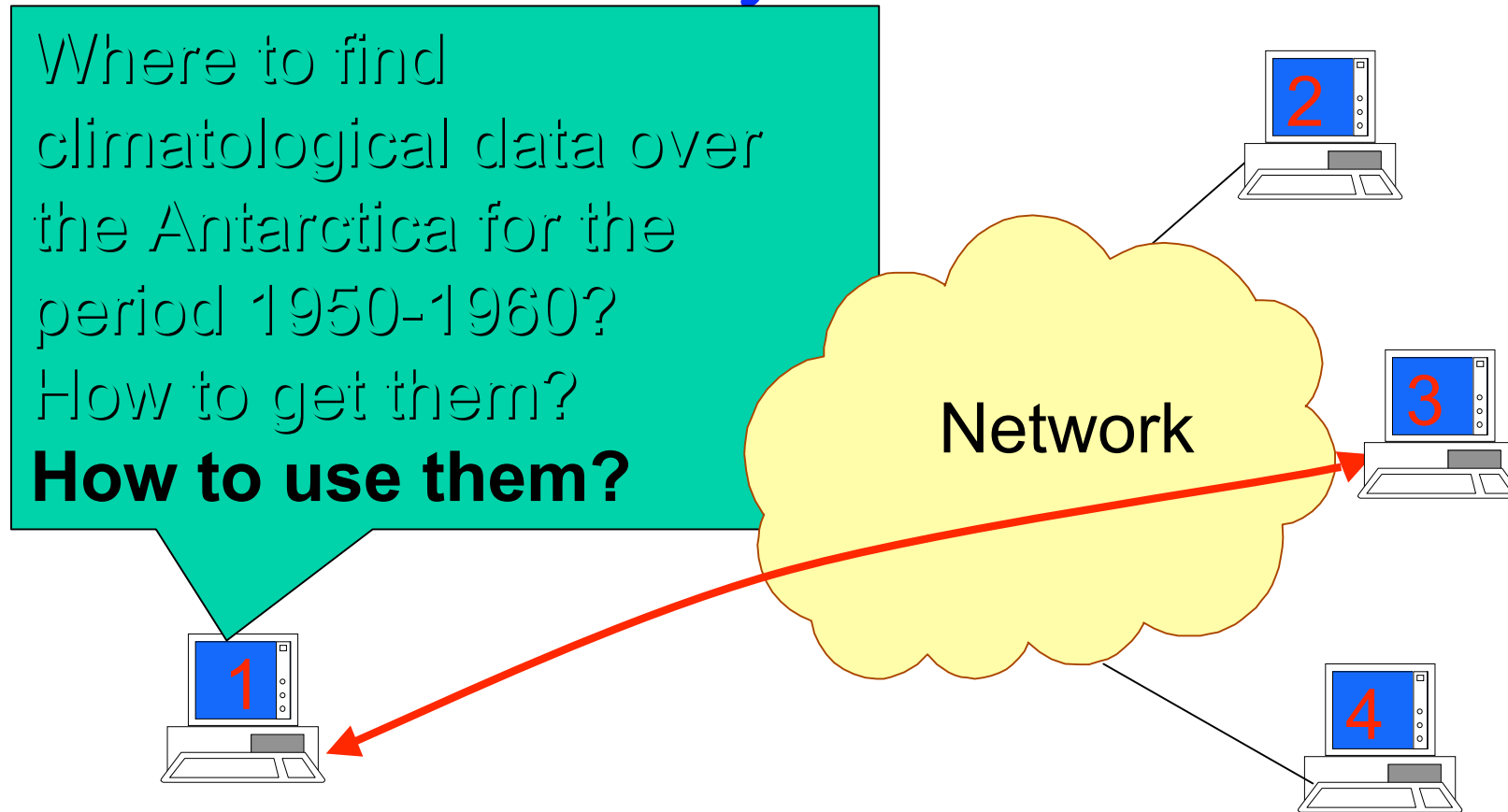
# Interoperability of Information Systems

Where to find climatological data over the Antarctica for the period 1950-1960?  
**How to get them?**  
How to use them?



Solution: select a data set from the information received from 4, for example select data from 3 and get them

# Interoperability of Information Systems



**Solution: extract information on how to use the data from the metadata available in 3**

# Interoperability of Information Systems

- The Technical Commissions were invited to designate focal points to further develop the WMO Metadata Standard : CAeM, CAS and JCOMM designated focal points.
- The Inter-Commission Co-ordination Group on the FWIS will co-ordinate the further development and implementation of the WMO Metadata Standard for the WMO Programmes.



# Interoperability of Information Systems

- The further application of ISO 19100 series of standards would increase the interoperability within WMO Programmes:
  - Ability to represent data in a compatible form
  - Ability to query and manipulate data in a common database distributed over different platforms

# Interoperability of Information Systems

- The application of ISO 19100 series of standards increases the interoperability of WIS with other information systems, for example:
  - Ability to share data with other scientific programmes
  - Ability for the NMHSs to share data with their users

# Interoperability of Information Systems

- The WIS should be developed in association with other initiatives promoting the interoperability of systems in the area of geophysical and environmental sciences, and should contribute to their implementation.
- Examples of initiatives :
  - DMAC in the USA
  - INSPIRE in the European Union
  - GEOSS

# WMO Metadata Standard

## Design

- Based on the ISO 19100 series of geographic information standards
  - ISO standard 19115 – Metadata
  - ISO standard 19110 – Methodology for feature cataloguing
  - ISO standard 19106 – Profiles
    - A WMO core Profile
    - Extensions specific to each WMO Programme

# WMO Metadata Standard

- Experts teams
  - Former CBS Expert Team on Integrated Data Management
  - Inter-Programme Expert Team on Metadata Implementation (IPET-MI) established by CBS-XIII
  - Include focal points designated by WMO Technical Commissions and Programmes

# WMO Metadata Standard

- The Inter-Programme Expert Team on Metadata Implementation (IPET-MI) should:
  - Pursue the development of the metadata standard to be used in the WMO information system (WIS) as a WMO core profile within the context of the ISO 19115 geographic information standard, and contribute to and interact with ISO as appropriate, including creating a core feature catalogue in compliance with ISO 19110;
  - Develop WMO Metadata standard extensions specific to the WWW Programme, and promote development of extensions specific to other WMO Programmes in liaison with respective Technical Commissions;
  - Further study the use of related ISO metadata standards, especially the ISO 19100 series, for the development of the WIS;
  - Coordinate the development of reference XML Metadata templates and reference implementation;
  - Develop guidance for the implementation and use of operational information catalogues

# WMO Metadata Standard

- CBS-XIII endorsed the “formal draft version 1.0” of the WMO Core Profile against which WMO Programmes would perform formal testing
- Documents are available from  
<http://www.wmo.int/web/www/WDM/Metadata/documents.html>
- Meeting of the IPET-MI and Workshop on Metadata tentatively in Beijing from 26 to 30 September 2005
- WMO participates in ISO work for the development of the WMO Metadata Standard