The Research Data Centre (RDC) in the Cloud

Ingo Barkow (DIPF) and David Schiller (IAB)

IASSIST 2013, Cologne, 2013-05-30
Outline - Scope

1. Introduction
2. RDC in the Cloud
3. Legal Implications
4. Security concerns
5. Advantages of Cloud services
6. Conclusion and Outlook

• Concentrate on Germany
What is a RDC? (I)

It is a Research Data Centre

• Research Data
  o Data coming from different sources (surveys, statistics, process generated etc.)
  o Prepared to fit the needs of researchers coming from different disciplines

• Centre
  o Physical facility equipped with IT and staff (connected to an organisation)
  o Place where research data and related data documentation is stored
What is a RDC? (II)

1. Receiving data in different formats and preparing it to become research data
2. Do the data documentation
3. Deal with users asking for data
4. Offering workspace - computation power, storage, tools
5. Coordinate output control (in general carrying for data security on different levels)
6. Give support to the researchers
7. Archive data (and syntax?) for later use
What is Virtualization?

• Cloud technology bases on the abstraction of virtual hardware from physical hardware
• The virtual hardware can move between different cluster nodes in the data centre
What is a cloud? (I)

Three major concepts of cloud services
What is a cloud? (II)

Cloud services can have different locations
The RDC in the cloud

Special case for cloud services as it concerns the public sector which often demands special rules in data handling and logging.

In Germany:
- Data protection laws (Datenschutzgesetz)
- Security standards (BSI Grundschutz)
- Logging requirements
- Avoidance of the US-Patriot Act
Legal implications

- Two security domains
  - Research Data (confidential)
  - Personal user account information
- German Federal Data Protection Act (BDSG; one of three)
  - Controller §3(7) - Data owner using (private) cloud
  - Contract data processing §11 by cloud provider
  - Contract regulates responsibilities
    - e.g.: the duration of contract work, data security measures to be taken according to § 9 BDSG, any right to issue subcontracts
  - Only valid within the European Economic Area (EEA)
  - Otherwise it would be data transfer
Security concerns

- Commercial external vendor might access (and sell) the data
- Compromise of the virtual infrastructure (virus or attack on the hypervisor)
- Identity theft
- Other violations of data protection laws

Vendor must be chosen based on infrastructural, legal and contractual considerations.
Advantages of Cloud services

• External vendors often offer better services, security levels and infrastructure than small or medium-sized institutions
• Hardware levels can be increased and decreased on demand
• Less internal infrastructure costs
• Minimizing licensing costs
Conclusion and Outlook

• Special cloud vendors in Germany and UK (G-Cloud) for governmental demands
• The EC wants to support the development of cloud solutions on European level
• RDC cloud services as SaaS platform

Clouds might be an alternative for smaller organizations or countries with sub-optimal infrastructure
Thank you for your attention!

Ingo Barkow, DIPF
barkow@dipf.de

David Schiller, IAB
david.schiller@iab.de