OMNICLOUD

Secure and Flexible Cloud Backup

Fraunhofer SIT
Data Backup in the Cloud?

Pros
- Cheap
- Unlimited storage
- Profess. management
- Physical security

Cons
- Security?
- Privacy?
- Compliance?
- Control?
- Availability?
- Provider lock-in?
Data Backup in the Cloud?

Status today

- Big differences in security features of cloud storage providers, 
- Uncertainties regarding compliance and costs

Consequences

- Big enterprises rely on private clouds
- Security-aware SMEs: cloud storage often not used
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Main objectives

− Make software cloud-ready
− Make cloud storage secure
− Prevent cloud provider lock-in

Market

− Security-aware SMEs without budget for private clouds
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Operation in enterprises

– Changing of staff and duties
– Identity management and access control

Example scenarios

1. Secure reliable redundant backup
2. Shared project folder
3. Aggregation of multiple cloud storage services to a big one
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Makes Cloud Storage Secure

Client-side file encryption
- Before leaving the company’s intranet
- Filename and folder structure obfuscation

User authentication
- Various authentication mechanisms

Role-based access control
- Fine grained user permissions
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Approach: Enterprise gateway

Easy integration
- Make use of existing communication protocols
- Standard software, no client installation
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Input and Output Modules
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Supports Different Storage Strategies

Examples

Striping

Mirroring

Sharing
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Client-side Data Deduplication

Recognition of duplicated files:
– Copied just once to the cloud
– Reduction of cloud storage costs
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Prevents Provider Lock-in

Actively supports switching to another provider

- Data migration service running as a cloud computing service (efficiency)
- Relocation of data from one provider to another
- No decryption or re-encryption
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Further information
www.sit.fraunhofer.de/omnicloud
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„Investment in your Future“

Investments for this work were co-funded by the European Union with European regional development funds and by the state government of Hessen.