Autonomy of User Groups in Microsoft Windows

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Agenda

- Delegation Concepts
- Windows Authentication
- Access Control Lists and Entries
- Demonstration on demand (HPI Interaction example)
- Further possible solutions

Why delegate control ?

Delegation Concepts

Reasons for task delegation

- **Organizational structure**
- **Operational requirements**
- **Legal requirements**
- **...**

Autonomy (manage independently)

- ***service autonomy***
- ***data autonomy***

Isolation (prevent others from)

- ***service isolation***
- ***data isolation***

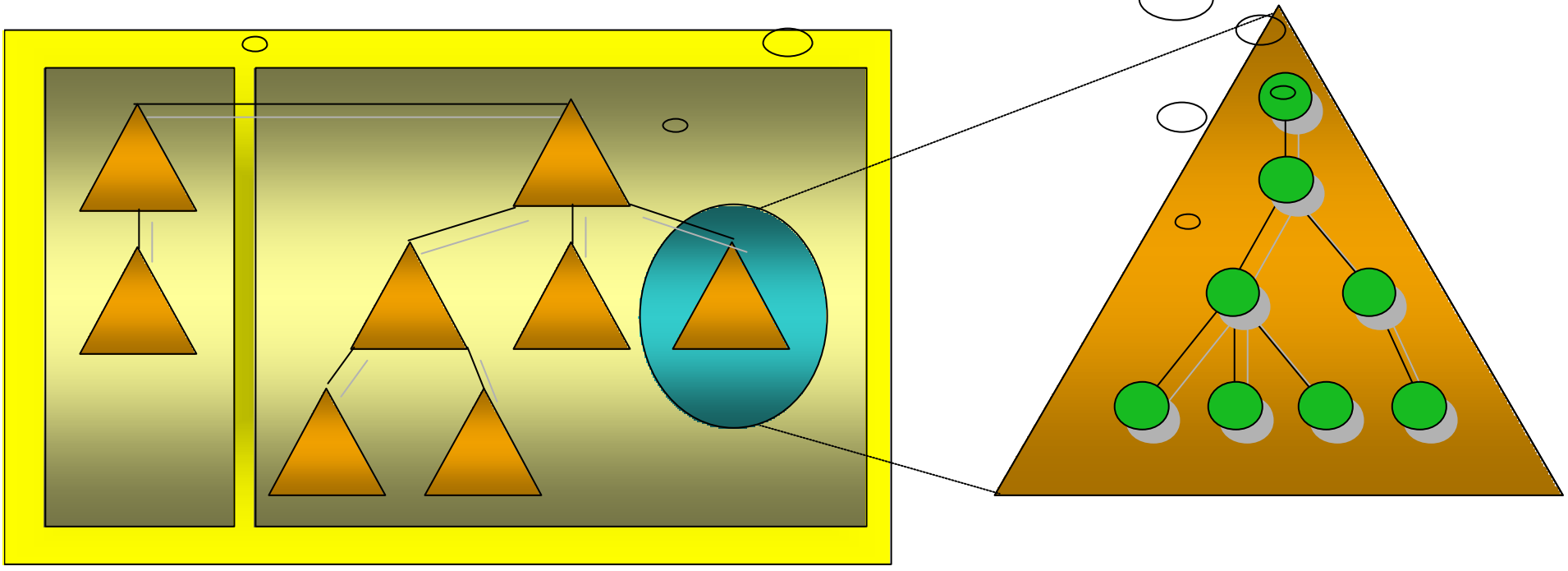
Which object control can be delegated ?

Delegation Concepts (contd.)

Abstract structures to delegate

- Organizational unit (OU)
- Domain
- Forest

Where to start delegation of control ?



Delegation Concepts (contd.)

- **Staff OU**
  - **OU per faculty**
- **Students OU**
  - **OU per year**
- **Extern OU**
  - **Multiple Sub-OUs**

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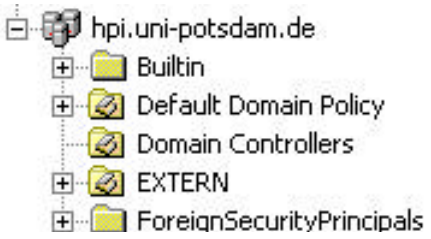
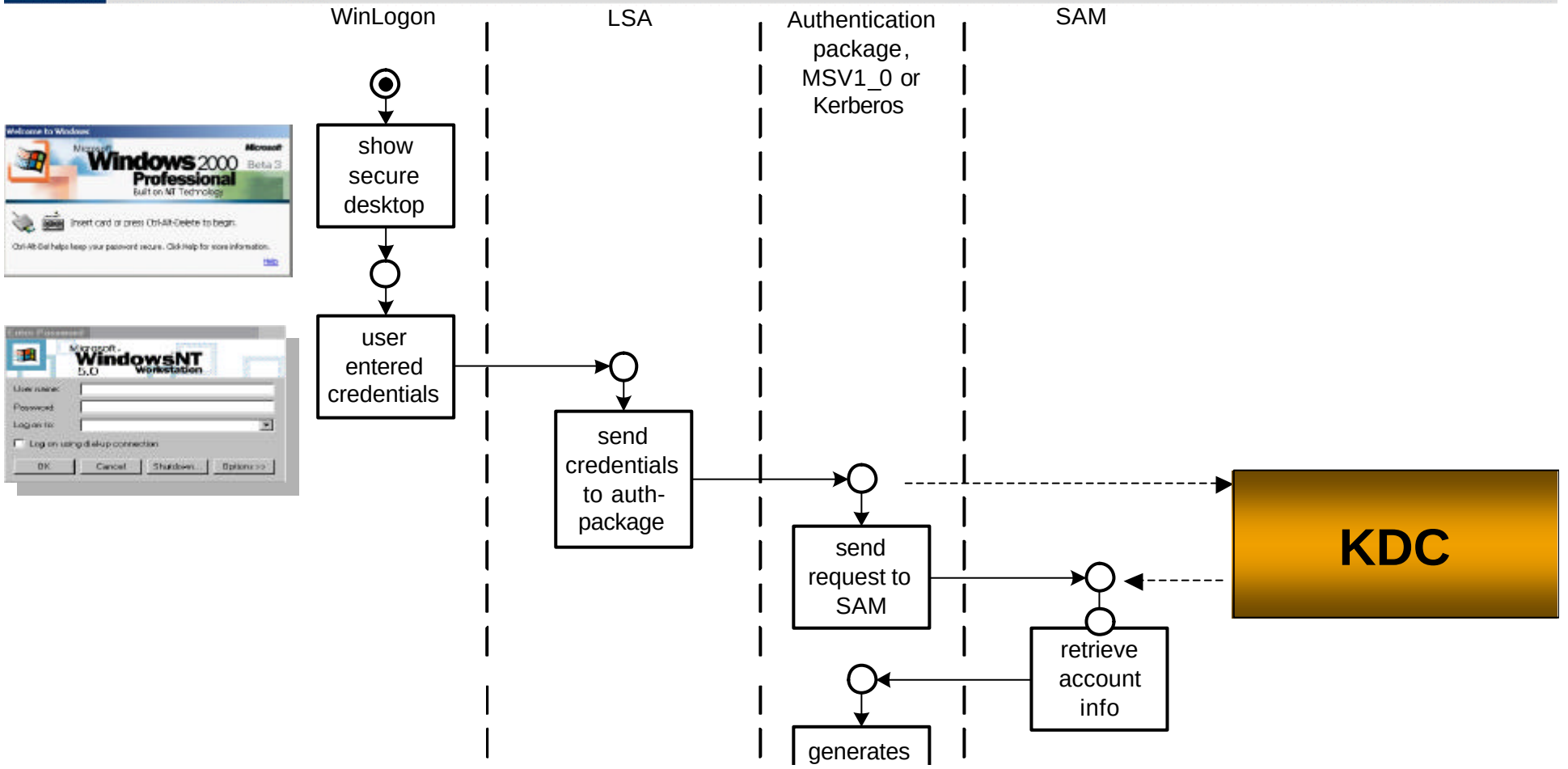


Windows Authentication



Static access control

- once a user is logged-on, the Access Token is not changed
- whether access is granted is not determined at the time of access

Access Control Lists

Active Directory (AD) object permissions

- Windows in general: an attempt to access a securable object is subject to an access check
- same applies to AD objects – AD permissions control who can do what on those objects
- the three default permissions are read, write, and full control
- every AD object has these permissions
- *some may have more (depending on object class)*

Some directory service access rights are:

- read/modify permissions
- read/write all properties
- create/delete all child objects

Access Control Lists (contd.)

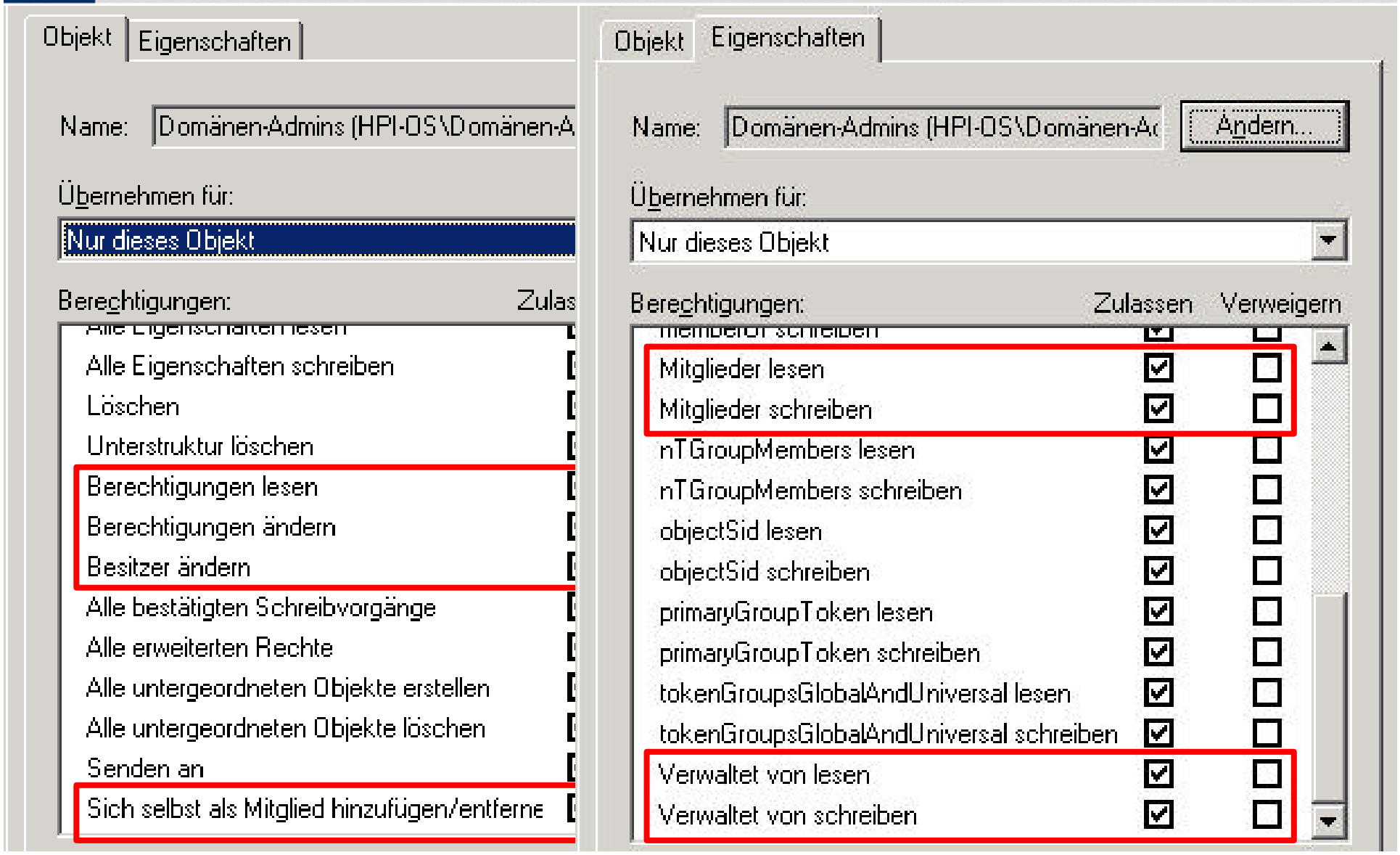
Those permissions can be categorized into

- **standard and**
- **special permissions**
  - **validated writes** (validate a property value before writing it)
  - **“extended rights” (sets of properties)**

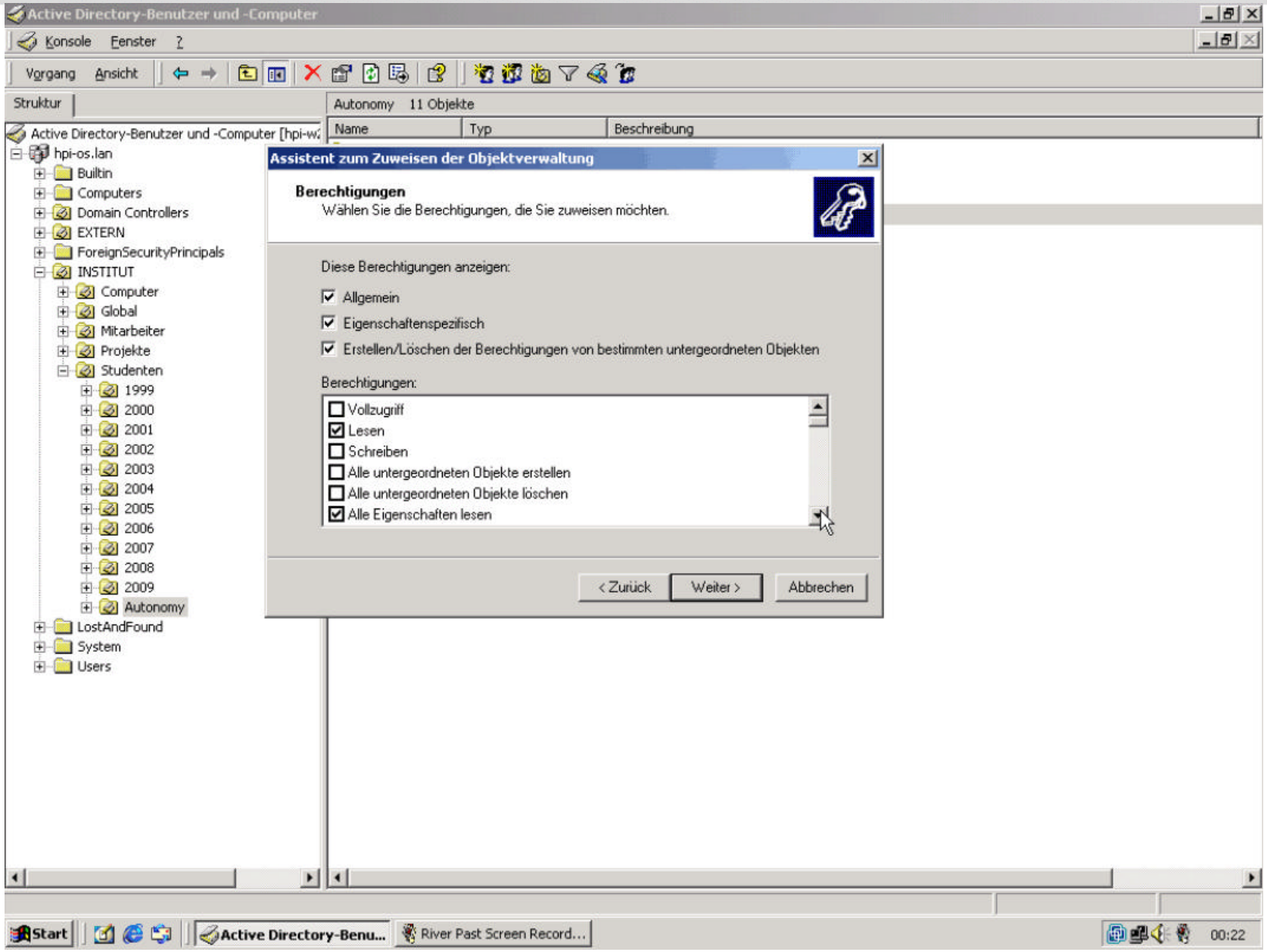
Group object comes with particular permissions:

- **read/write group name**
- **read/write groupType**
- **read/write groupAttributes**
- **read/write members**

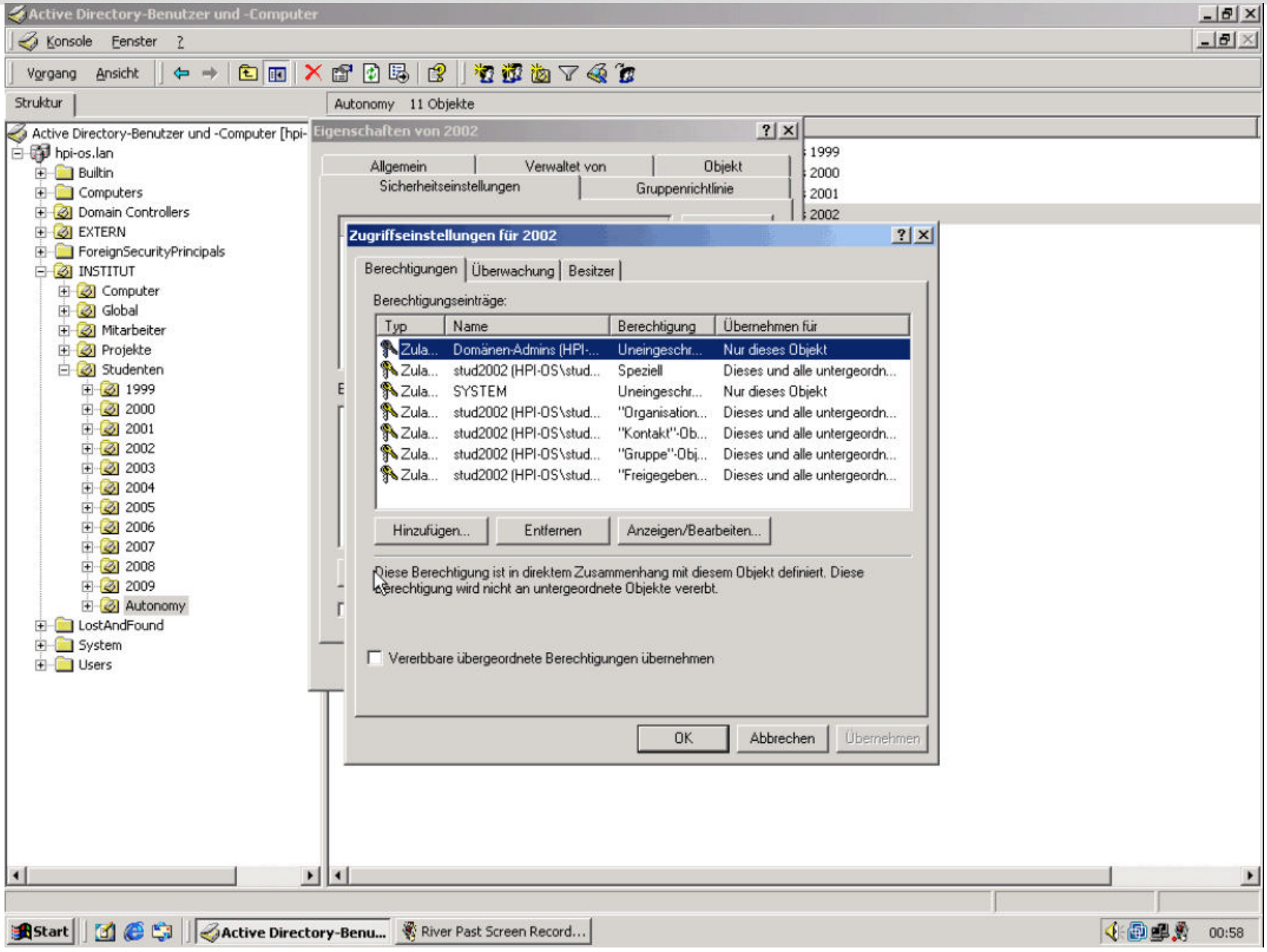
Access Control Entries for Groups



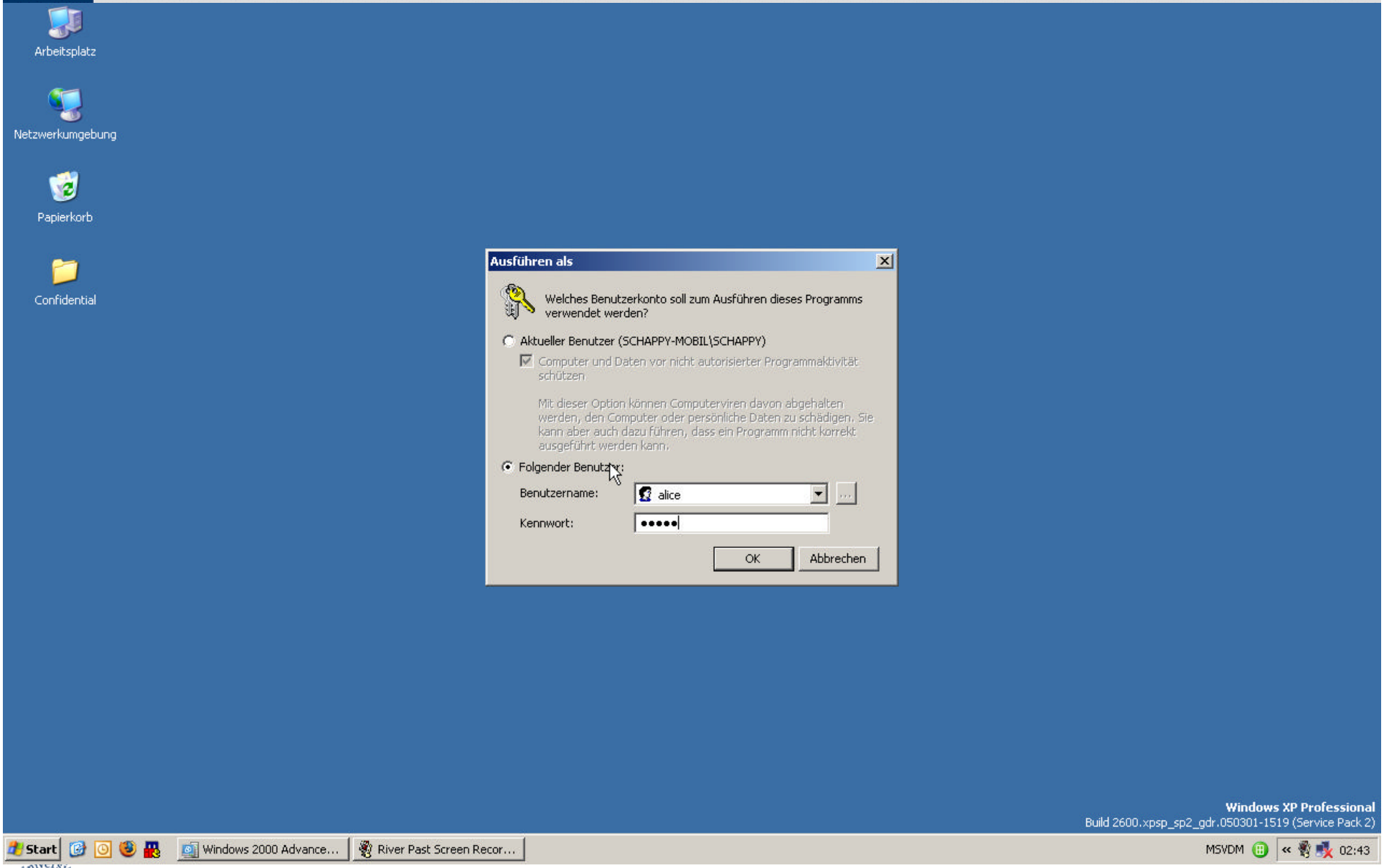
Demonstration on demand (HPI Interaction example)



Demonstration on demand (contd.)



Demonstration on demand (contd.)



Further ways to access the AD

- access and administration of groups via webserver
  - PHP-/ASP scripts
  - Requires access to AD for webserver process
  - Poses high security risk
- application programs written for that particular task
  - More effort
  - Security issues
  - Batch scripts
  - VB scripts

Pros vs. Cons

Pros:

- **Fine granular (more than rwx)**
- **Simple way to delegate control**
- **Transparent and scalable**

Cons:

- **Single-sign-on credential**
- **Replicas need time (transitional trusts)**
- **Abandoned Groups (Large Numbers of ACEs in ACLs Impair Directory Service Performance)**

Thank you for the attention!

Any questions?

Literature

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