

METADIRECTORY TOOL VDS/MD

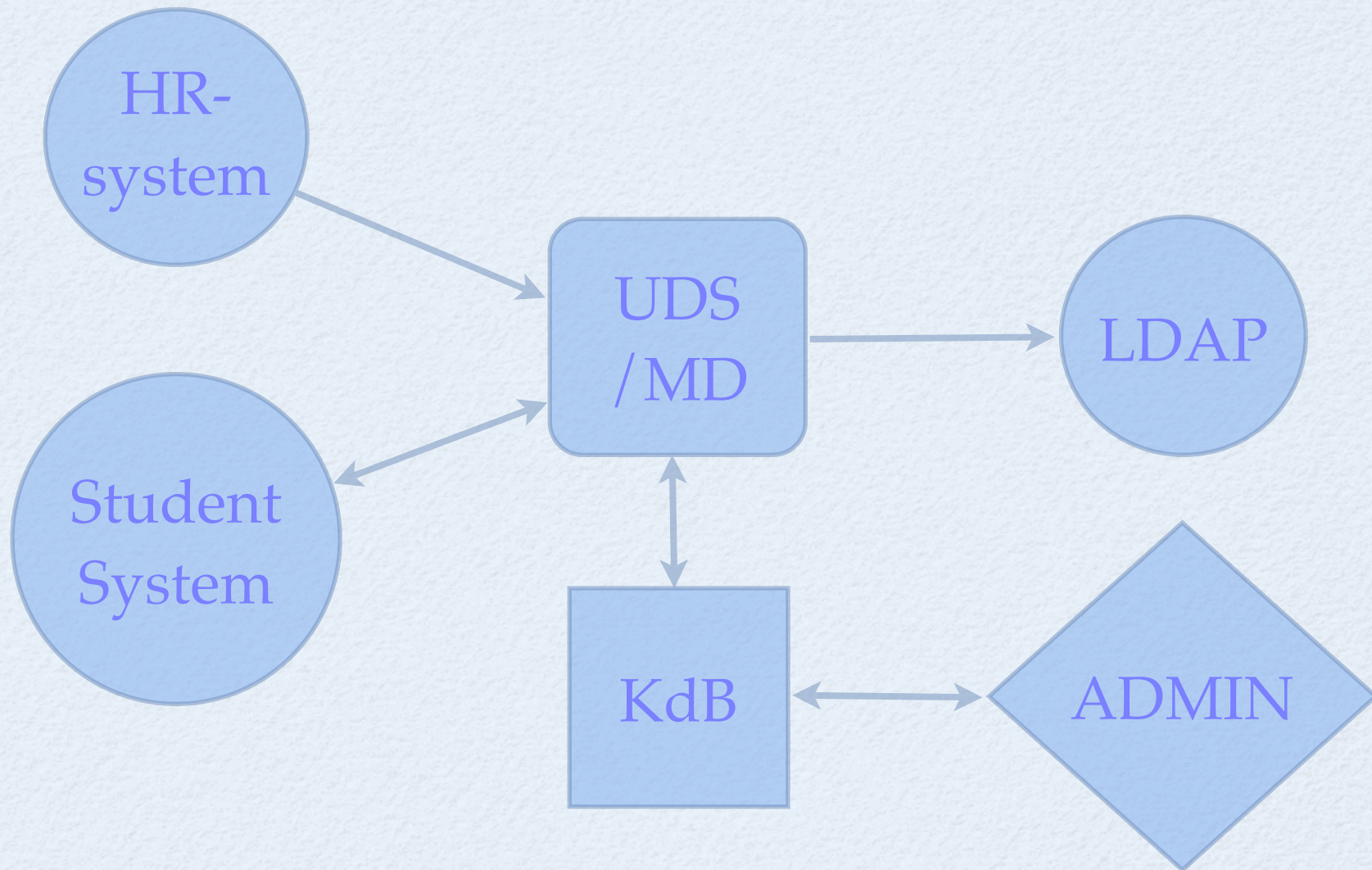
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METADIRECTORY ACCORDING TO WIKIPEDIA

- A metadirectory system provides for the flow of data between one or more directory services and databases, in order to maintain synchronization of that data, and is an important part of identity management systems. The data being synchronized typically are collections of entries that contain user profiles and potentially authentication or policy information. Most metadirectory deployments synchronize data into at least one LDAP-based directory server, to ensure that LDAP-based applications such as single sign-on and portal servers have access to recent data, even if the data is mastered in a non-LDAP data source.
- Metadirectory products support filtering and transformation of data in transit.

BASIC LAYOUT VI



PROBLEMS WE HAVE TRIED TO ADDRESS (1)

- **A way to uniquely identify objects within UDS/MD;** how do you match information stored about one object in one source with information about the same object at another source, when each source may have its own unique identifier for the object ?
- **Means by which information of the same kind can be addressed in a common way;** a target should not have to know under what name each source has a particular piece of information stored, and there must be one, and only one, attribute name for each piece of information that UDS/MD shall handle.
- **Harmonization of formats;** a target should not have to know all the different representations that might exist of the same type of information, therefore there has to be a common format that local representations can be converted to and from.
- **Well defined input/output formats;** information changes, that occurs in sources, that should be reflected as changes in the targets has to be represented in a common, well defined format.

PROBLEMS WE HAVE TRIED TO ADDRESS (?)

- **Logic**; like when a set of attribute/values can be combined to form a new set of attribute/values
- **Dynamic data flow**; which information that should flow where should be changeable on the spur of the moment
- **Open data structure**; the system should be able to handle new types of information without much ado
- **Changeable environment**; sources and sinks should be possible to add and remove while the system is running
- **Replaying**; it should be easy to 'replay' a set of events
- **Logging**; should be possible to trace a packets way from a source to a sink.
- **Adapters**; facilitate the building of new adapters

FEATURES OF UDS/MD@UMU

- Events as RDF graphs
- Interface between and sources / sinks - DjB MailDir
- Makes a real effort not to loose packets
- 'Pattern' based routing
- Object Identifier mapping

RDF FORMAT EVENT EXAMPLE

```
<uds:add> <uds:src> "primula" .  
<uds:add> <uds:eid> "6648" .  
<uds:add> <uds:person> _:a .  
_:a <uds:oid> "NIN:19570331-8575" .  
_:a <uds:guise> "anst1" .  
_:a <udsattr:norEduPersonNIN> "19570331-8575" .  
_:a <udsattr:givenName> "Per Arne" .  
_:a <udsattr:sn> "Nilsson" .  
_:a <udsattr:umuEduPersonEmploymentExtent> "100" .  
_:a <udsattr:norEduOrgUnitUniqueNumber> "1500" .  
_:a <udsattr:eduPersonAffiliation> "faculty" .
```

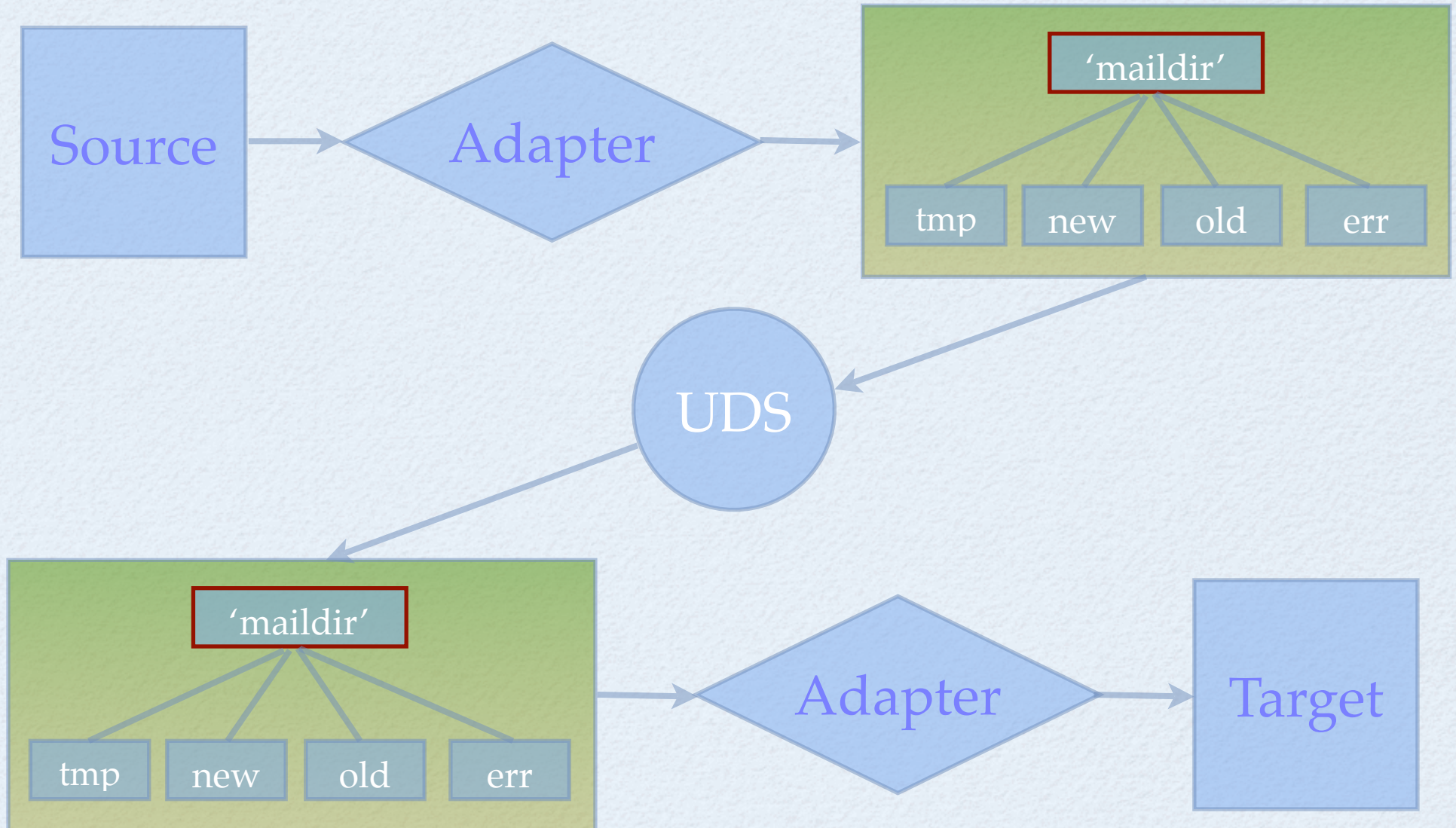
'PATTERN' MATCHING

- A. Spocp contains a policy engine that is very good at matching S-expressions against 'rules'
 - B. RDF graphs can loss less be transformed to and fro S-expression
- A + B => route server

OBJECT IDENTIFIER MAPPING

- One persistent ID, never reused or changed
- One or more 'local' IDs which may or may not change
- 11565371 (UDS / MD@UmU ID)
 - uid: peni0001
 - nin: 195703318575
 - dn: uid=peni0001,ou=person,dc=umu,dc=se

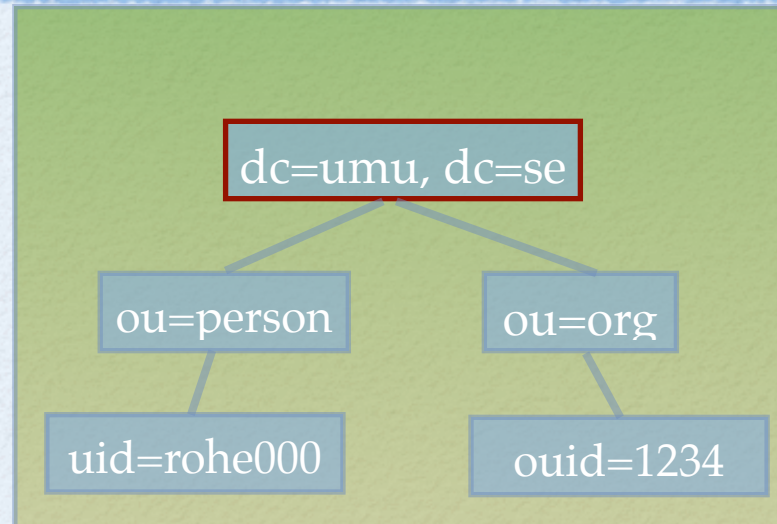
THE PLACE OF THE ADAPTER



WORK OF THE ADAPTER

- Character set conversion
- Import from source or export to sink
- Attribute mapping
- Attribute value harmonization
- Safe delivery
- RDF construction/ deconstruction
- Logic

LDAP ADAPTER



- Uses attribute options to keep guises separate
- add “ascii” versions
- handle ‘tokenization’
- Constructs attribute values from other attribute values
- Collect attribute values from other entries

```
<uds:add> <uds:src> "primula" .  
<uds:add> <uds:eid> "6648" .  
<uds:add> <uds:person> _:a .  
_:a <udsattr:givenName> "Per Arne" .  
_:a <udsattr:sn> "Nilsson" .
```

displayName: Per Arne, Nilsson

cn: Per Arne Nilsson

cn: Per Nilsson

cn: Arne Nilsson

givenName: Per Arne

givenName: Per

givenName: Arne

sn: Nilsson

- `<uds:add> <uds:src> "primula" .`
- `<uds:add> <uds:eid> "6648" .`
- `<uds:add> <uds:person> _:a .`
- `_:a <uds:guise> "anst1" .`
- `_:a <udsattr:umuEduPersonEmploymentExtent> "100" .`
- `_:a <udsattr:norEduOrgUnitUniqueNumber> "1500" .`
- `_:a <udsattr:eduPersonAffiliation> "faculty" .`

eduPersonOrgUnitDN;x-guise-anst1: **norEduOrgUnitUniqueNumber=1500,ou=org,dc=umu,dc=se**
 eduPersonOrgUnitDN: **norEduOrgUnitUniqueNumber=1500,ou=org,dc=umu,dc=se**
 umuEduPersonEmploymentExtent;x-guise-anst1: **100**
 umuEduPersonEmploymentExtent: 100
 eduPersonAffiliation;x-guise-anst1: **faculty**
 eduPersonAffiliation;x-guise-anst1: **member**
 eduPersonAffiliation;x-guise-anst1: **employee**
 eduPersonAffiliation: faculty
 eduPersonAffiliation: **member**
 eduPersonAffiliation: **employee**
 ou;x-guise-anst1: **Arkeologi och samiska studier**
 ou: **Arkeologi och samiska studier**

dn: [uid=peni0001,ou=person,dc=umu,dc=se](#)

displayName: [Per Arne, Nilsson](#)

cn: [Per Arne Nilsson](#)

cn: [Per Nilsson](#)

cn: [Arne Nilsson](#)

objectClass: [person](#)

objectClass: [organizationalPerson](#)

objectClass: [inetOrgPerson](#)

objectClass: [inetLocalMailRecipient](#)

objectClass: [eduPerson](#)

objectClass: [norEduPerson](#)

objectClass: [umuEduPerson](#)

o;x-search: [Umea Universitet](#)

eduPersonOrgDN: [dc=umu,dc=se](#)

eduPersonPrincipalName: [peni0001@umu.se](#)

o: [VW1lw4UgVW5pdmVyc2l0ZXQ=](#)

o;lang-en: [Umea University](#)

uid: [peni0001](#)

givenName: [Per Arne](#)

givenName: [Per](#)

givenName: [Arne](#)

norEduPersonNIN: [19570331-8575](#)

sn: [Nilsson](#)

eduPersonOrgUnitDN;x-guise-anst1: [norEduOrgUnitUniqueNumber=1500,ou=org,dc=umu,dc=se](#)

eduPersonOrgUnitDN: [norEduOrgUnitUniqueNumber=1500,ou=org,dc=umu,dc=se](#)

umuEduPersonEmploymentExtent;x-guise-anst1: [100](#)

umuEduPersonEmploymentExtent: [100](#)

eduPersonAffiliation;x-guise-anst1: [faculty](#)

eduPersonAffiliation;x-guise-anst1: [member](#)

eduPersonAffiliation;x-guise-anst1: [employee](#)

eduPersonAffiliation: [faculty](#)

eduPersonAffiliation: [member](#)

eduPersonAffiliation: [employee](#)

ou;x-guise-anst1: [Arkeologi och samiska studier](#)

ou: [Arkeologi och samiska studier](#)

STATE OF THE PROJECT

- Going through the last tests
- Will be in production use within weeks
- Is public domain
- Going to add documentation before releasing