PID's
(in theory land)

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Locations change

- "URL's won't change"
  - But: High Volatility: Average Lifetime of Pages < 2 months

- Item URL's
  - http://www.example.org/perl/item.pl?id=42
  - Domain changed
  - http://www.example-**moved**.org/perl/item.pl/id=42
  - Host changed
  - http://**repo**.example-**moved**.org/perl/item.pl/id=42
- Solved by redirection layer on top
  - Assign an administrative ID: i.e. "1234"
  - Establish service which makes redirection of "1234" configurable (i.e. to repo.example-moved.org)
- Location problem solved and freely configurable, but introducing new abstraction layer and new dependency to external service provider

Web Technologies change

- Old Application/Website in Perl
  - http://www.example.org/**perl/item.pl**?id=42

- Newer Application/Website in PHP
  - http://www.example.org/**item.php**?id=42

- Prepare for technology independence
  - http://www.example.org/**item/42**
    - **Could be resolved to /perl/item.pl?id=42 or /item.php?id=42**

- Solves technology problem, but introduces the need for an own redirection service within application
- Now already 2 Resolvers are necessary: 1 external for Location, 1 for own Web Application, Complexity growths

Item Re-Arrangement

- Old Item number
  - 42

- Administrative Units merge, many items have to be migrated
  - Many items "42" might exist
  - Locations can be handled by the external abstraction service
  - Location ID's 1234, 2345, 3456 could be consolidated into new ID (i.e. 9999)
  - Items 1234/42, 2345/42, 3456/42 must be re-assigned to new item ID's

- Apply for globally unique Item ID's right from the beginning to ensure the ID's are unique

- Another external Authoritative Service for issuing globally unique Item ID's necessary (like i.e. ISSN)

- 3 Services now needed, 2 of them external to single web application

Service discontinuation

- Administrative ID or Item ID issuing Organization discontinues
    - Best Case
        - Could be delegated to other Organization smoothly
    - Worst Case
        - No Resolving possible anymore by ID's
    - Now out of scope to Item provider

- Repository discontinues services
    - Items could be found somewhere else
    - Is there any helpful data available by ID Registration Authority?
        - The more metadata available from the ID RA the easier it will be to find the item somewhere else

- Metadata integration within RA necessary

Item Representations

- What is Item 42 ?
  - Item 42 has some metadata
  - Is a publication with supplementary material available
  - Includes a PDF file and two images
  - PDF file has 2 versions
- And even beyond traditional publication items (granularity, relations, content-types)

- Which Use Cases for Humans do apply?
- Which Use Cases (Protocols) for Machines do apply?

- These are probably different

Use Cases for Humans (Examples)

- Show Metadata

- Download PDF

- Cite Version

- Show Image

- Use Cases should be connected to according services

- Services should be actionable on Items

- Service ID's and their registration is necessary for sustainable referencing

Use Cases for Machines (Examples)

- Get Information about Item in standardized format
    - Versions
    - Metadata
    - Properties
    - …
- Get Information about data within item
- Retrieve contents/data/files within item
- Get Information about aggregations
- Retrieve network of other relations about this item

- Standards to be chosen for each of these requirements

End

Thanks for your attention