Creation and Long-term Preservation of Digital Multimedia Resources-Some Preliminary Practices

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1.Introduction to the National Cultral Information Resources Sharing Project

- Began in April, 2002

- Funded by Chinese government

- Nationwide cultural resources sharing

- Aims to provide people esp. farmers with rich cultural resources

- *Outline of National Economic and Social Development in the 11th Five-year Plan*

- *Outline of Culture Development in the 11th Five-year Plan*

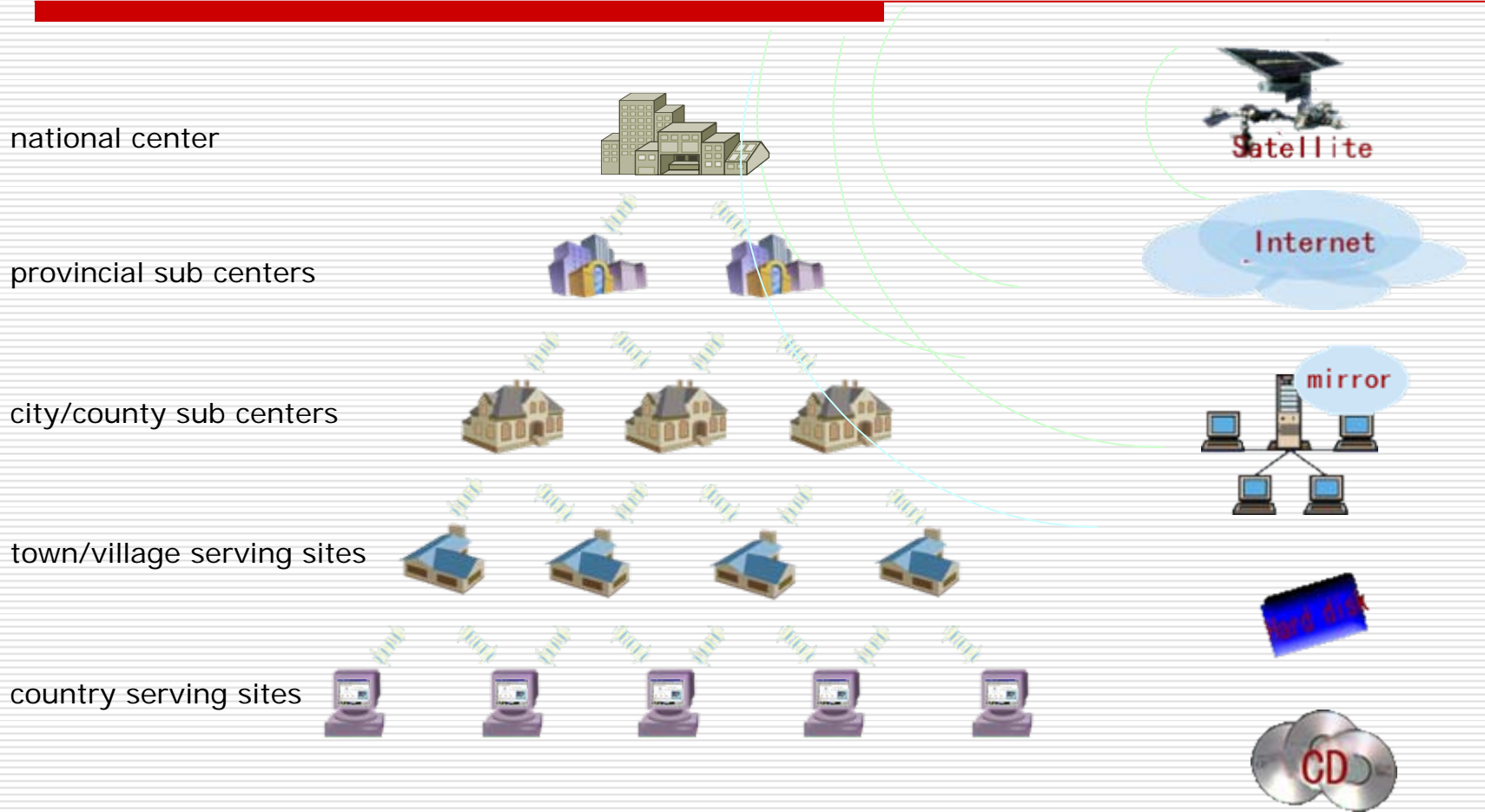# 1.1 Service Network and Technical Architecture(1)

national center

provincial sub centers

city/county sub centers

town/village serving sites

country serving sites

Satellite

Internet

mirror

Fig. 1 The Project's Service Network

1.1 Service Network and Technical Architecture(2)

- The sponsor (government) and the beneficiary (public groups)
- Supported with standards& specifications and security
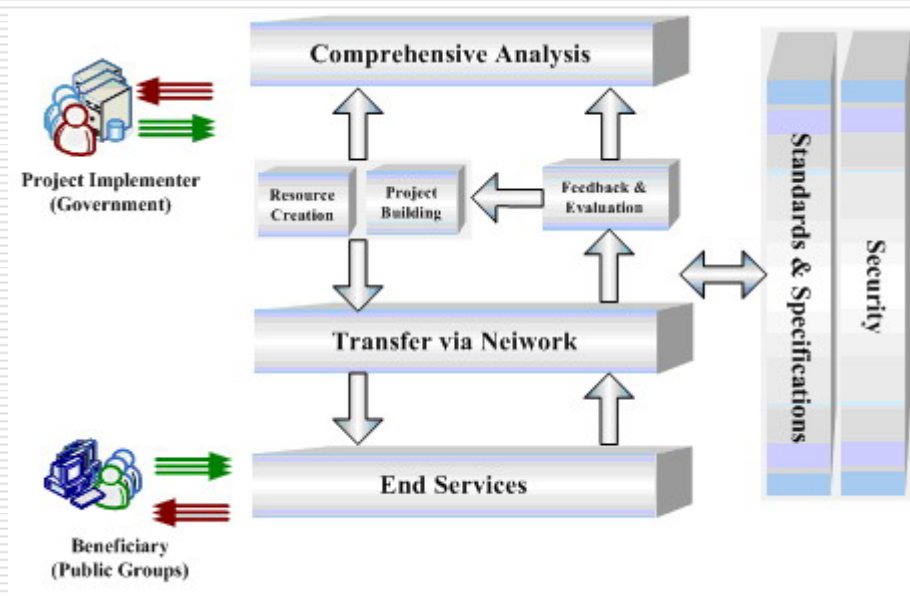- Closed-loop interactive information flow based on network

Fig. 2 Technical Architecture of the Project

1.2 Creation of Digital Resources

- 10TB digital resources created by national center
  - Mainly videos,14110units,8040hours time-length. Including stage arts,lectures,featured agricultural filems, movies, series, cartoon & animation, and national minority's languages
  - E-books:30,000 categories,3.5 million titles
  - Electronic agricultural magazines:1,643 categories,5million titles.
  - Topic repositories:49

- 50TB digital resources creates by provincial sub centers

1.3 Development Plan

- Fund further 2.47 billion RMB by 2010

- Each county/town will have sub center

- Each grass-roots will have serving sites

- Try to extend to each village across China

- 100TB digital sources

2 Some Preliminary Practices in Creation and Long-term Preservation of Digital Multimedia Resources

- Standards and Specifiacations Used

- Creation Process and System Functions

- Distributed Storage of Digital Resources

- Hierarchical Storage for Local Resources

2.1 Standards and Specifications Used

- China Digital Library Standards (Project No. 2002DEA20018, sponsored by the Ministry of Science and Technology)

- Cataloguing Standards for Broadcasting, TV Programs and Audio & Visual Materials (Standard No. GY/T 202.1-2004)

  - Tailor the description levels – program and clip

  - Simplify the XML-based Schema
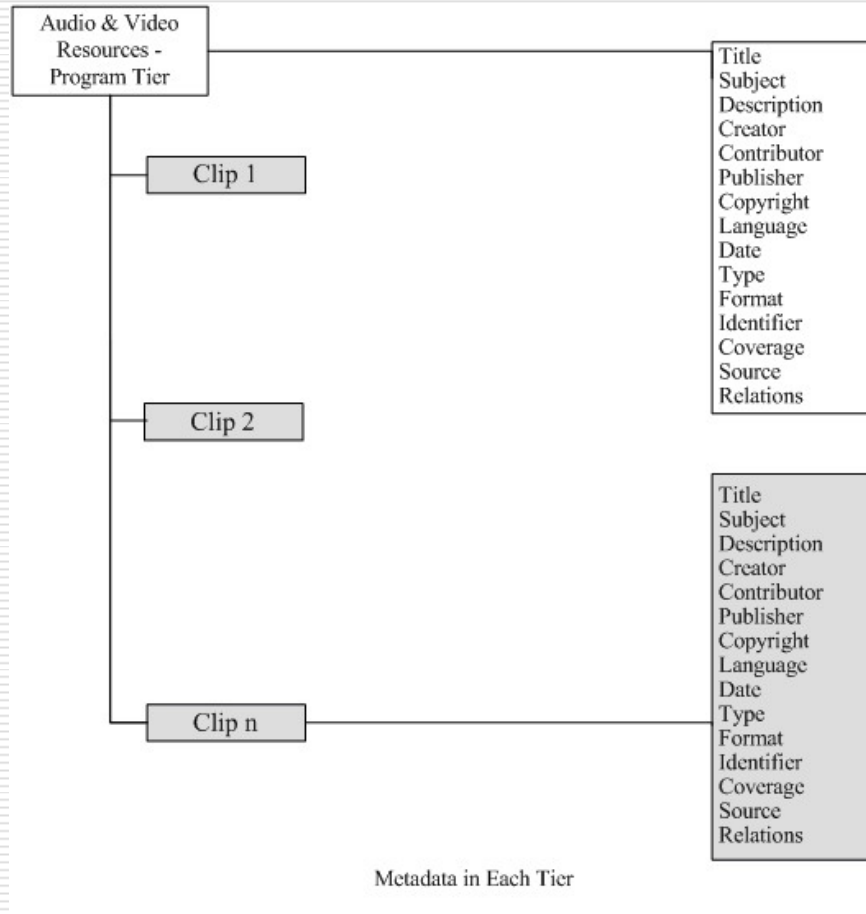
Two tiers – program, clip

Fig. 3 Two-tier Description of Video Resources

Four bit rates uesed of video digitizing

- 8MB with MPEG2 formats for storage

- 1.5 MB with WMV formats for application in LAN and satellite live services

- 300KB with WMV formats for broad band web services

- 56KB with WMV formats for narrow band web services.

2.2 Creation Process and System Functions(1)

●Fundamental work process : collecting, reviewing, processing, cataloguing, publishing and statistics

●Attached to offline video asset management and online video asset management

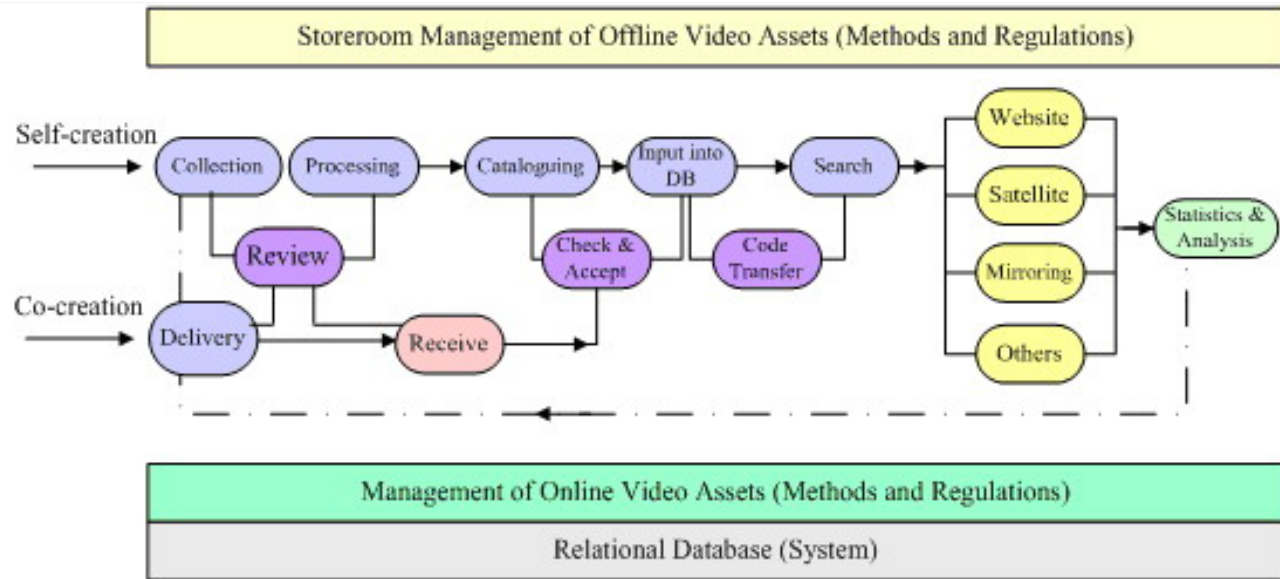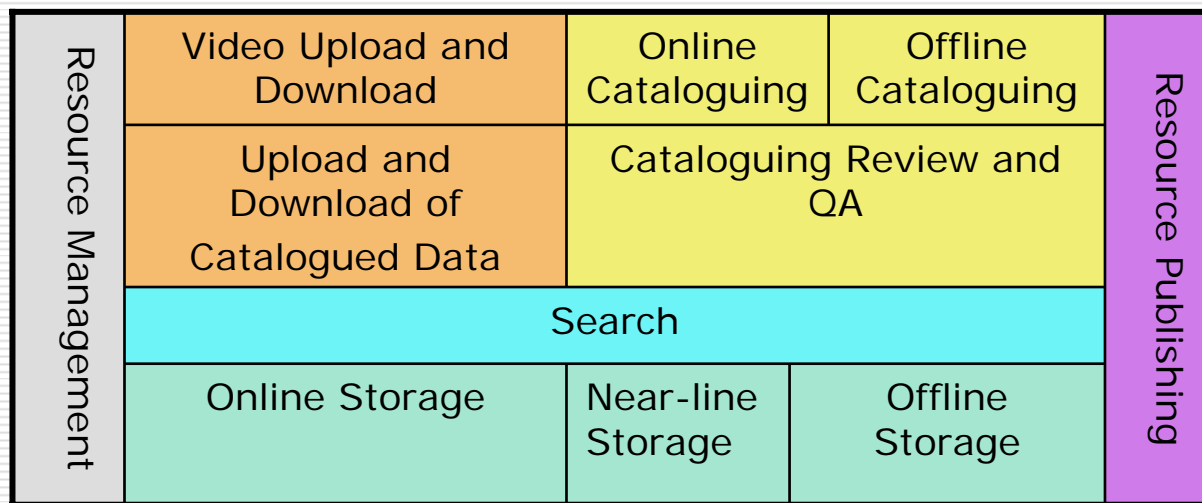●Constrained by various supervision regulations

Fig. 5 Software Architecture of Video Management System

2.2 Creation Process and System Functions(2)

The six modules of the Project's video management system :

- upload/download

- storage

- cataloguing

- search

- management

- publishing

Resource Management	Video Upload and Download	Online Cataloguing	Offline Cataloguing	Resource Publishing
	Upload and Download of Catalogued Data	Cataloguing Review and QA		
	Search			
	Online Storage	Near-line Storage	Offline Storage	

Legend: ☐ Upload and Download Module   ☐ Cataloguing Module   ☐ Search Module
☐ Storage Module   ☐ Management Module   ☐ Resource Publishing Module

2.3 Distributed Storage of Multimedia Resources

- Metadata Storage

- Object Data Storage

Metadata Storage

●National center一 Form a general

resource directory

● Provincial center 一preserve and

update the local directory of resource

●City/county centers and

town/village-level serving sites 一
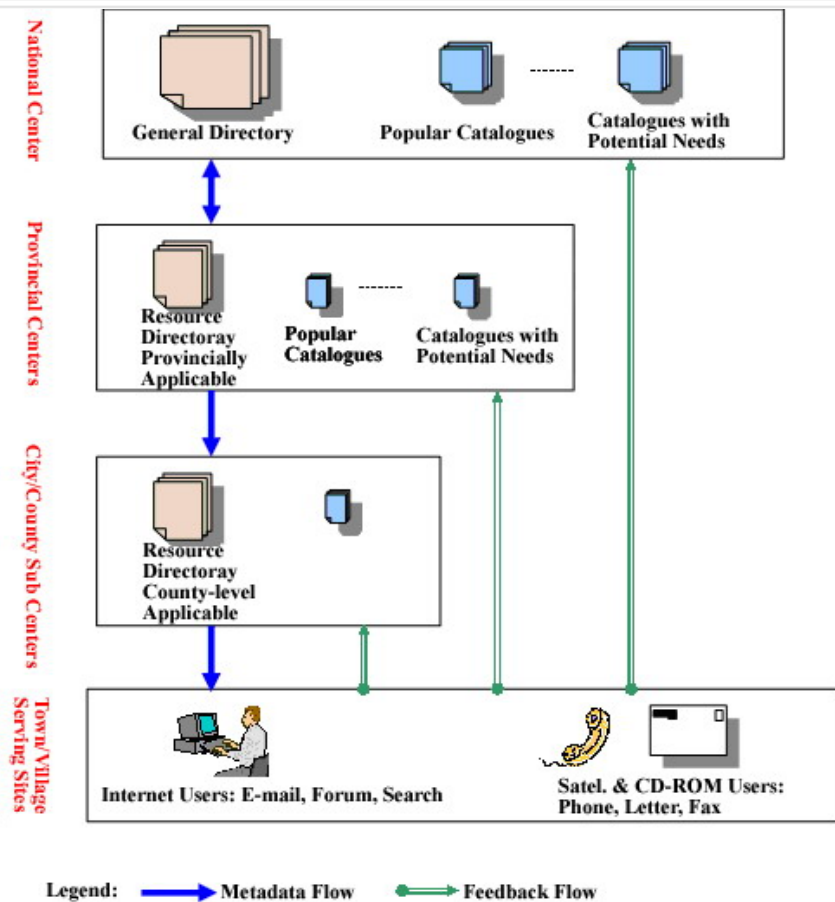
receive directory, and update it

Fig. 7 Feedback of Resource Needs

Object Data Storage

- National center :
  - object data of universal resources
  - local featured resources delivered by the provincial centers
- Provincial centers :
  - local featured resources
  - best ones (suitable for local needs) selected from resources downloaded by the national center
- The city/county and town/village-level centers
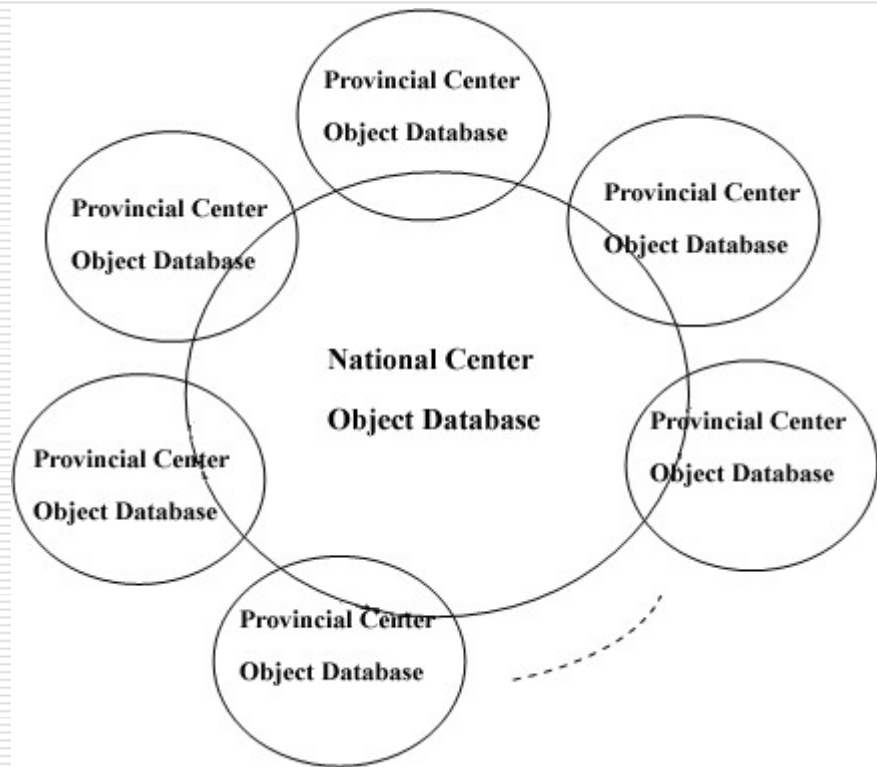 - focus on services
  - no object data for a long term

Fig. 8 Distributed Storage of Object Data

2.4 Hierarchical Storage for Local Resources

- Online Storage

- Near-line Storage

- Offline Storage

Online Storage

- Features: Connected with publishing systems for websites, satellite and grassroots version

- Media: High-performance disk array

- File Format:1.5MB, 300KB, 56kb

- Access Frequency: Real-time access and update

Near-line Storage

- Features: Used for application with large volumes of data and managed with online sys

- Media: Tape storage devices with automatic tape library

- File Format: 8MB AVI and 1.5M, 300KB and 56KB WMV

- Access Frequency: Medium access frequency

Offline Storage

- Features: Providing storage for online and near-line; media library

- Media: Tapes and CD-ROMs

- File Format: Original format, 8MB AVI and 1.5M, 300KB and 56KB WMV

- Access Frequency: Low access frequency

3.Issue Related to Creation and Long-term Preservation of Multimedia Resources

- Relationship between Storage and Efficient Services

- Selection of Resources for Long-term Preservation

- Combination with Long-term Preservation of Digital Library Resources

3.1 Relationship between Storage and Efficient Services

Long-Term Preservation Locations

Resource General Directory

National Center Resource Mirroring(Disaster Tolerance)

Repositories at National Center

Acquisition of Universal Resources
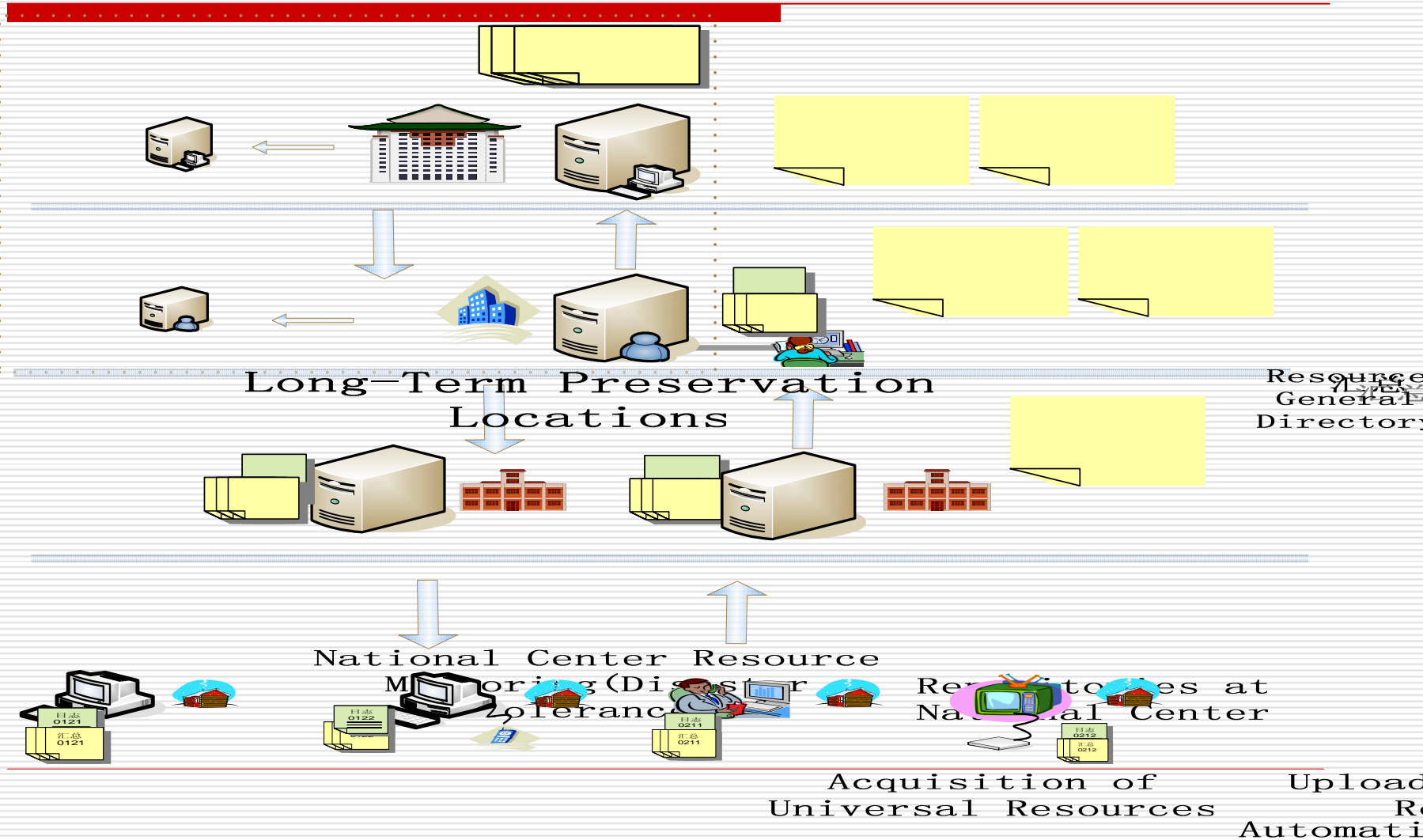
Upload Re Automati

Fig.9 Hierarchical Storage and Service Model

3.2 Selection of Resources for Long-term Preservation

- Respect for the Intellectual Property Rights of the Preserved Resources
  - Clear production rights through donation, self-creation, co-creation, favorable procurement and purchase.
  - Government Measure.
- Attach Importance to the Content and Quality of the Preserved Resources
  - Content selection: drama, opera, pantomime, comic dialogues, opusculum , acrobatics, puppetry, shadowgraphs, lectures and special folklores
  - Usage life: resources with public copyright and long-term use rights
  - Quality: resources in high definition (BETA, digital BATA and DVD)
  - Formats: resources with original formats or 8MB bit rate

3.3 Combination with Long-term Preservation of Digital Library Resources

- Keep Standards and Specifications of Resource Creation Consistent with Digital Libraries

- Collaboration with Digital Library Projects in Technical Platform

- Make Digital Resources Complementary with Digital Libraries

Thank You!

Additional Questions and Suggestions

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