

CASPAR Cultural, Artistic and Scientific knowledge for Preservation, Access and Retrieval

ENGINEERING INGEGNERIA INFORMATICA

## CASPAR Preservable Infrastructure

### Addressing Preservation with an OAIS based Infrastructure




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CASPAR Training Day for the Cultural and Scientific Domains  
ICCU January 12 2008 – Rome (Italy)

## Presentation Planning

- Preservable Infrastructure
- CASPAR Infrastructure
- Preservation Issues...
- ...and CASPAR Solutions
- Development Process

## Preservable Architecture



- Usually “**Traditional framework**” has something called component/service which provides functionality, if and only if component is composed with other ones (**required components/dependencies**)
- Each “**CASPAR Key Component**” has to provide always at least a minimal set of functionality independently from the **environment conditions**.

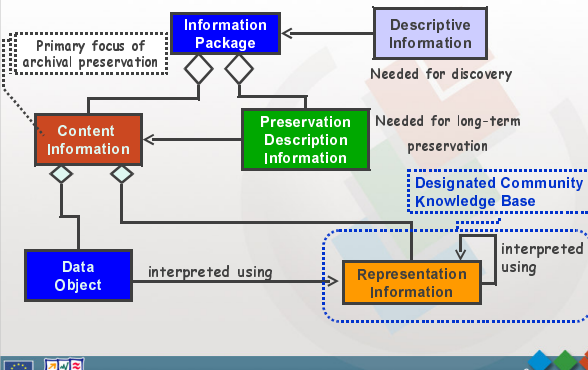
## Preservable Equation

<b>Self-Contained +</b>	Pure Service-oriented design guarantees that the component can provide functionality without requiring cooperation of other components	<ul style="list-style-type: none"> <li>• No Dependencies</li> <li>• Loosely coupled</li> <li>• Distributed</li> </ul>
<b>Well Described +</b>	Component analysis, design and development process is strongly based on <b>complete – shared – open</b> documentation at any level	<ul style="list-style-type: none"> <li>• Sharing know-how</li> <li>• Open Specification</li> <li>• Open Source</li> <li>• Open Documentation</li> </ul>
<b>Adaptable +</b>	Design choices and implementation allows to <b>adapt and configure</b> each component to provide always at least a minimal set of functionality <b>independently</b> from the <b>deployment framework and condition</b>	<ul style="list-style-type: none"> <li>• Flexibility</li> <li>• Scalability</li> </ul>
<b>Replaceable =</b>	Design choices and implementation allows to <b>replace</b> any component in the framework with <b>compliant</b> one.	<ul style="list-style-type: none"> <li>• Interoperability</li> <li>• Maintainability</li> </ul>
<b>Preservable</b>		

## CASPAR Infrastructure

- CASPAR Foundation Team has defined and implemented an Infrastructure by adopting the OAIS Reference Model (**ISO:14721:2003**)
- CASPAR Infrastructure is SOA-based

## CASPAR & OAIS Info Model



The diagram illustrates the CASPAR & OAIS Info Model. It shows the following components and their relationships:

- Information Package** (blue box) is the primary focus of archival preservation. It contains **Content Information** (orange box) and **Descriptive Information** (light blue box).
- Content Information** contains **Data Object** (blue box).
- Descriptive Information** is needed for discovery.
- Preservation Description Information** (green box) is needed for long-term preservation.
- Data Object** is interpreted using **Representation Information** (orange box).
- Representation Information** is interpreted using **Designated Community Knowledge Base** (dotted blue box).

**Knowledge Preservation**

...just a "sequence of symbols"... but...

Ancient Hieroglyphic Egyptian

Demotic Egyptian

Greek

Learning from the past (196 BC)

7

**Phaistos disk (dated to 1700 BC)**

We still cannot understand it (the meaning has not been preserved)

We can only understand it's a "sequence of symbols"...

8

**Digital World**

INGEST

STORAGE

ACCESS

ACCESS-Future

9

**CASPAR & OAIS Func Model**

DATA Mngt

PLANNING

INGEST

ACCESS

STORAGE

ADMINISTRATION

Producer

Consumer

Manager

10

**CASPAR MAIN QUESTION**

CASPAR BROCHURE

Cultural, Artistic and Scientific knowledge for Preservation, Access and Retrieval

“ How can digitally encoded information still be understood and used in the future when the software, systems and everyday knowledge will have changed? ”

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**Preservation Issues 1...**

1. How To guarantee a digital information may be **accessed and understood** in the future
2. How To guarantee a proper **information package management** within and OAIS Archive
3. How To guarantee **long-time preservation maintenance** of any information package

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## Preservation Issues 2...

1. How To guarantee **retrieval** of Archival Information
2. How To guarantee **intelligibility** within heterogeneous Designated Communities and their digital information
3. How To guarantee preservation actors are **informed about change events**

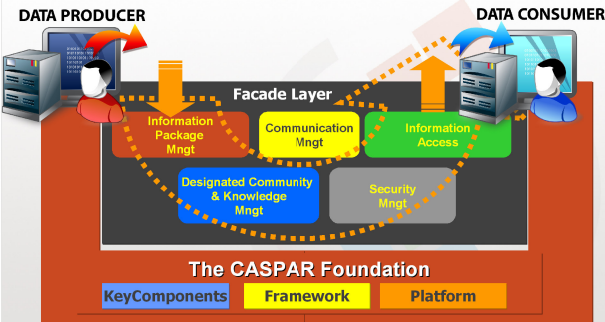


## Preservation Issues 3...

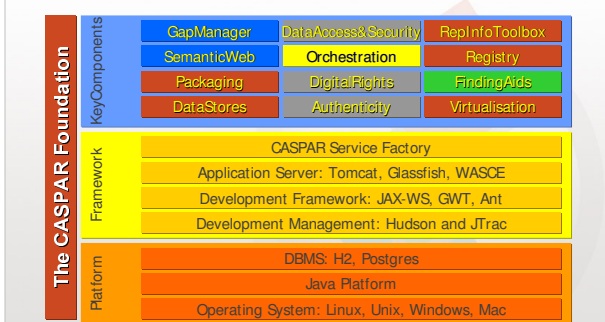
1. How To guarantee an adequate **security access** with the proper **rights** to any resource and functionality within an OAIS Archive
2. How To guarantee an adequate **integrity and identity** for any Archival Information



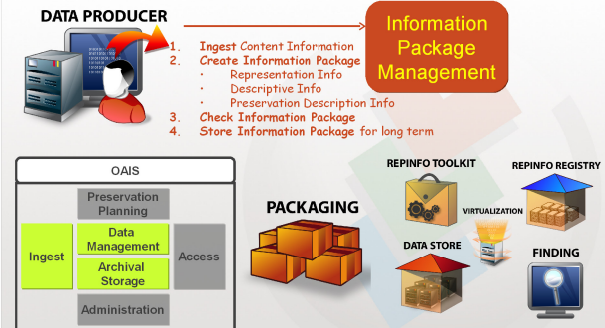
## CASPAR Solution



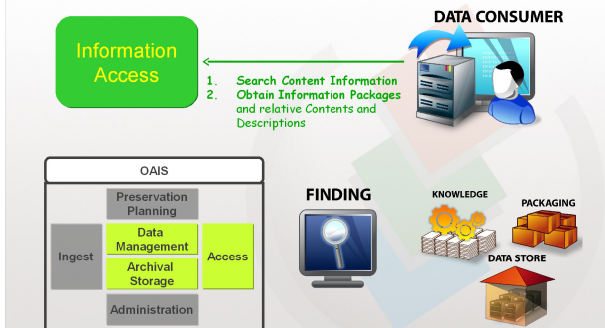
## CASPAR Foundation

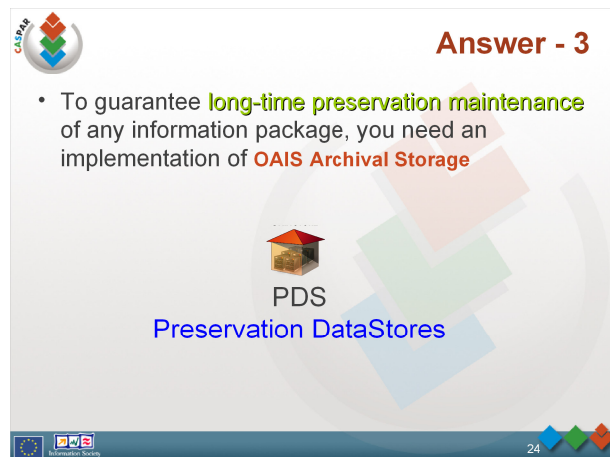
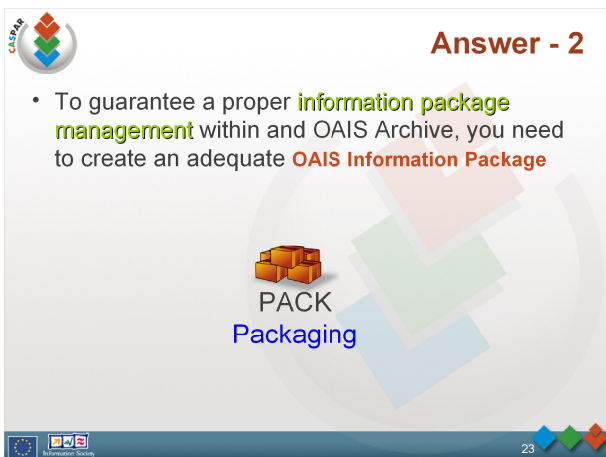
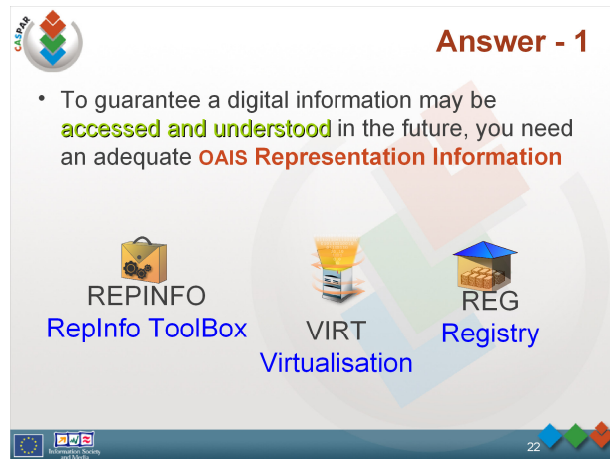
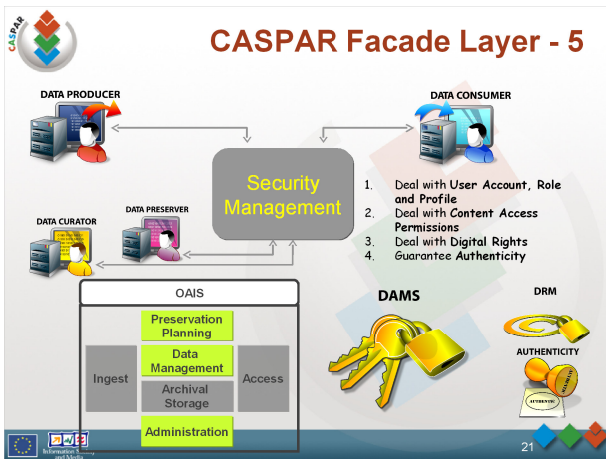
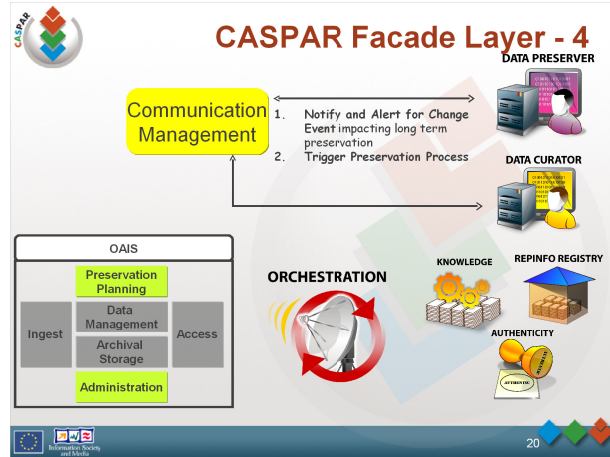
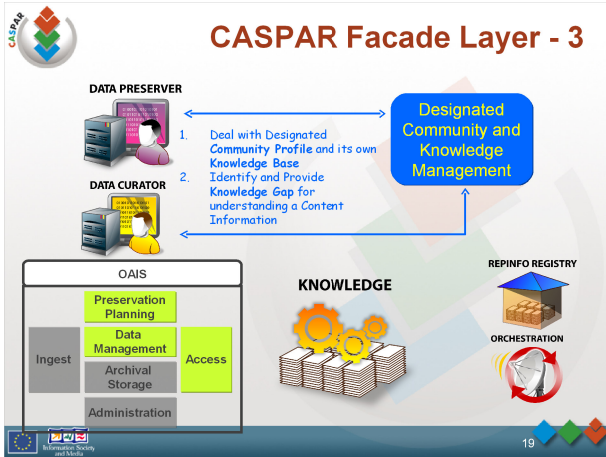


## CASPAR Facade Layer - 1



## CASPAR Facade Layer - 2









## Answer - 4

- To guarantee **retrieval** of Archival Information, you need an **OAIS Finding Aids**



FIND  
Finding



## Answer - 5

- To guarantee **intellegibility** within heterogeneous Designated Communities and their digital information, you need to manage **Designated Community Profiles** and their **Knowledge Base**



KM  
Knowledge



## Answer - 6

- To guarantee preservation actors are **informed about change events**, you need an adequate management of **message exchange**



POM  
Orchestration



## Answer - 7

- To guarantee an adequate **security access** with the proper **rights** to any resource and functionality within an OAIS Archive, you need a **Security and DRM Management**



DAMS  
Data Access Manager  
& Security



DRM  
Digital Rights Manager  
& Security



## Answer - 8

- To guarantee an adequate **integrity and identity** for any Archival Information, you need an **Authenticity Tool**



AUTH  
Authenticity



## Development Process

- Shared and cooperative development community based on
  - **CASPAR Best Practices**
- Development Management based on a detailed
  - **D1302 Overall Master Plan**
  - **Refinement Specifications**
- Development Control based on a Continuous Integration Engine
  - **Hudson + JTrac**
- Specification, Software and Documentation available for developers & practitioners

 **The CASPAR Developer Community**

Home | Software/Algorithms | Data/Tools | Specification and Documentation

>Welcome to the CASPAR Developer Community

The CASPAR Developer Community is the open and common playground where developers of CASPAR Project build, publish and provide results of their research and development activities: the CASPAR Framework and its Key Components, based on the **DAIS reference model (15014721:2002)**.

The CASPAR Project is a european research project on **Digital Preservation** co-funded by the European Commission, within the Sixth Framework Programme.

The CASPAR Developer Community is adopting the following approach:  
Open specification, Open software and Open documentation.


The CASPAR Developer Community web site represents the unified access point for:

- software monitoring, based on the continuous integration engine Hudson. The CASPAR software code is open to everybody and may be browsed. More, software artifacts are available for free download;
- issue tracker during software development, based on the tracker issue JTrack;
- accessing specification and documentation, defined by the CASPAR Developers. Sharing knowledge is a way to preserve it.




 <http://developers.casparpreserves.eu:8080>

European Commission - Sixth Framework Programme - Join the CASPAR Community



**Thank you!  
Thank you!  
Questions?  
Questions?**

...and Stay tuned on

 <http://developers.casparpreserves.eu:8080>

