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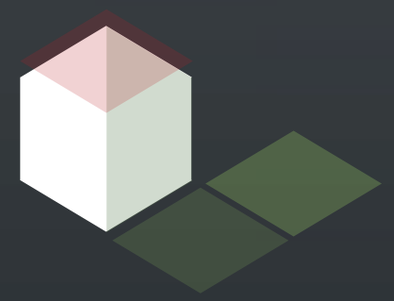

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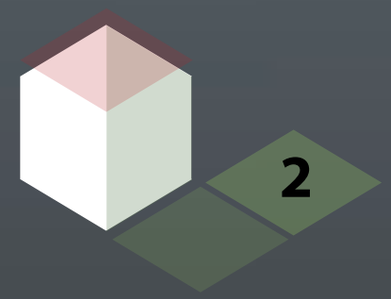
enriching architectural learning objects for experience multiplication

Moritz Stefaner, Elisa Dalla Vecchia, Massimiliano Condotta, Martin Wolpers, Marcus Specht, Stefan Apelt, Erik Duval

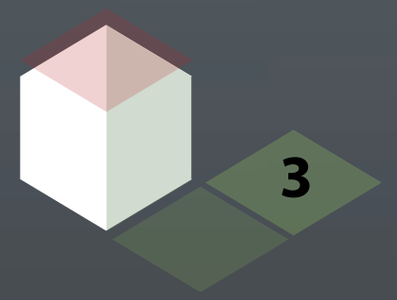
EC–TEL 2007

co-funded by the European Commission



OVERVIEW

- What is MACE about?
- Information needs for architects
- MACE infrastructure
- Services and applications
- Outlook



PROJECT OVERVIEW

- **M**etadata for **A**rchitectural **C**ontents in **E**urope
- Co–funded by the EU

  eContentPlus program
- September 2006 – 2009

- **Objective:**
  create a common infrastructure for enriching and retrieving educational contents about architecture in Europe

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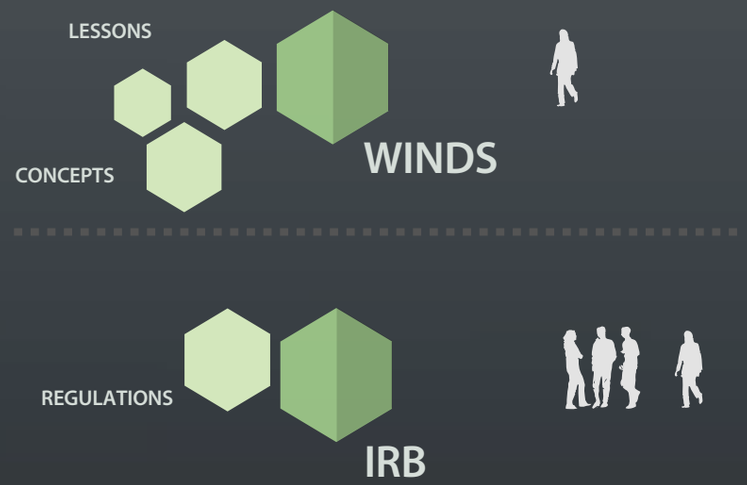
STARTING POINT



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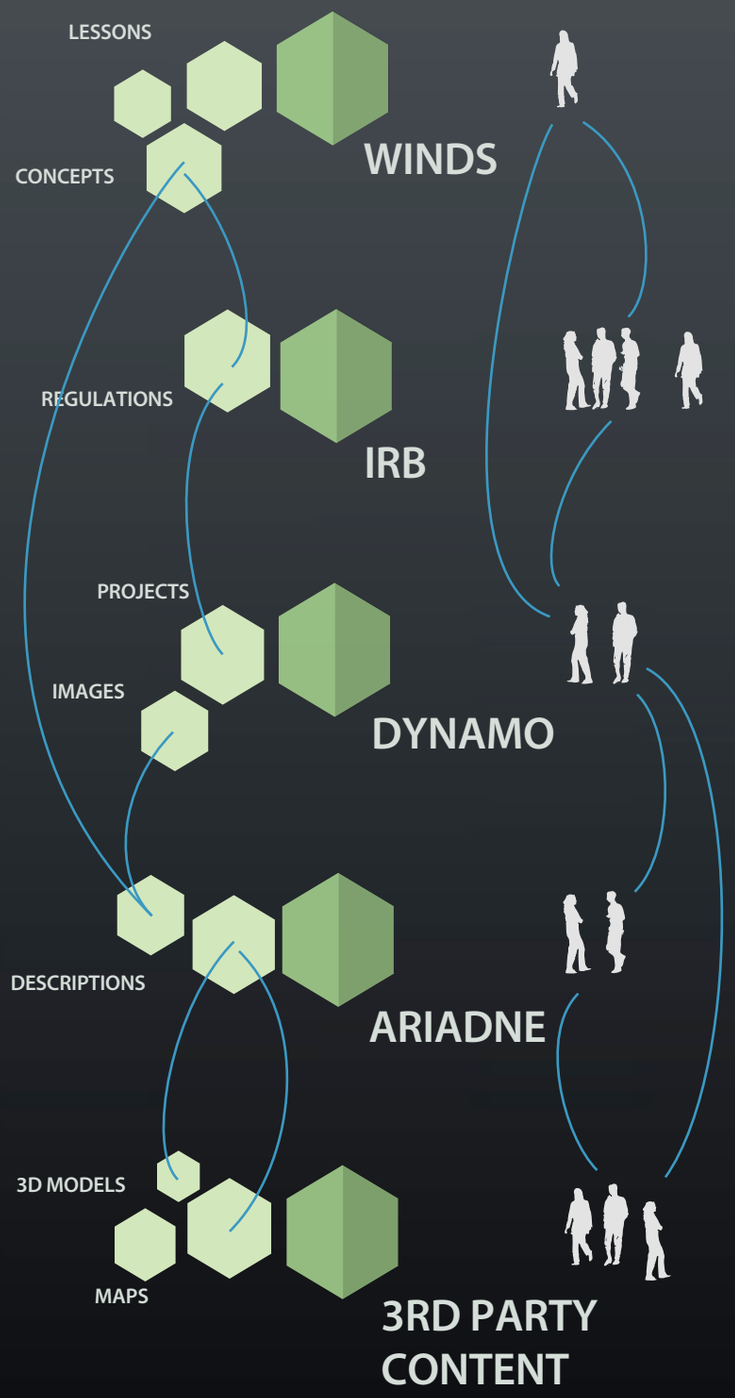
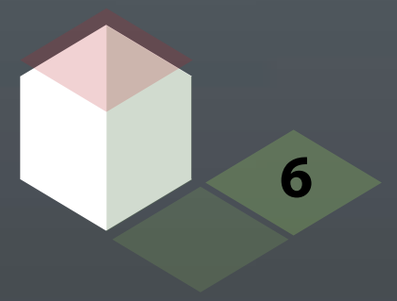
OBJECTIVE



Create a conceptual and technical infrastructure to

- connect contents via metadata
- connect existing communities
- provide federated search and access
- create a sustainable knowledge network



REQUIREMENTS ANALYSIS

- Architects are visual thinkers

  creative process based on processing a broad number of visual examples

  same image -> many concepts

- Broad information need

  Inspirational material

  Contextual features

  Technical information

  Regulations

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CONNECTING CONTENTS

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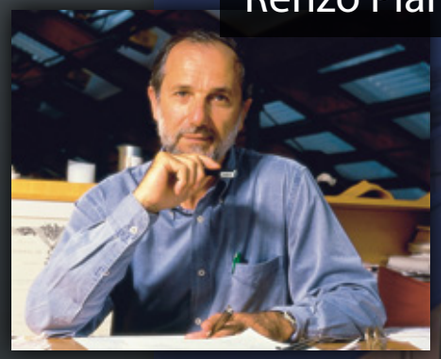

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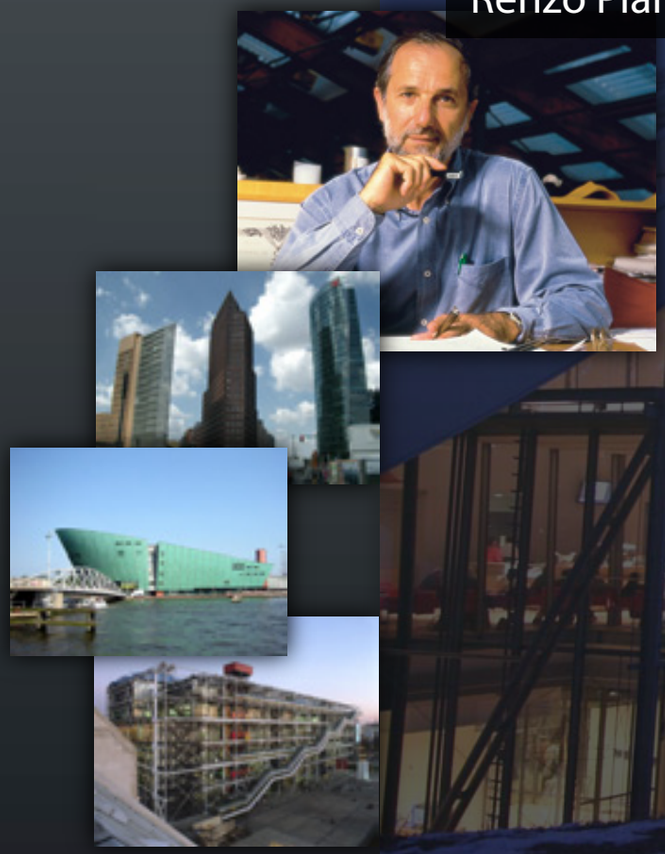

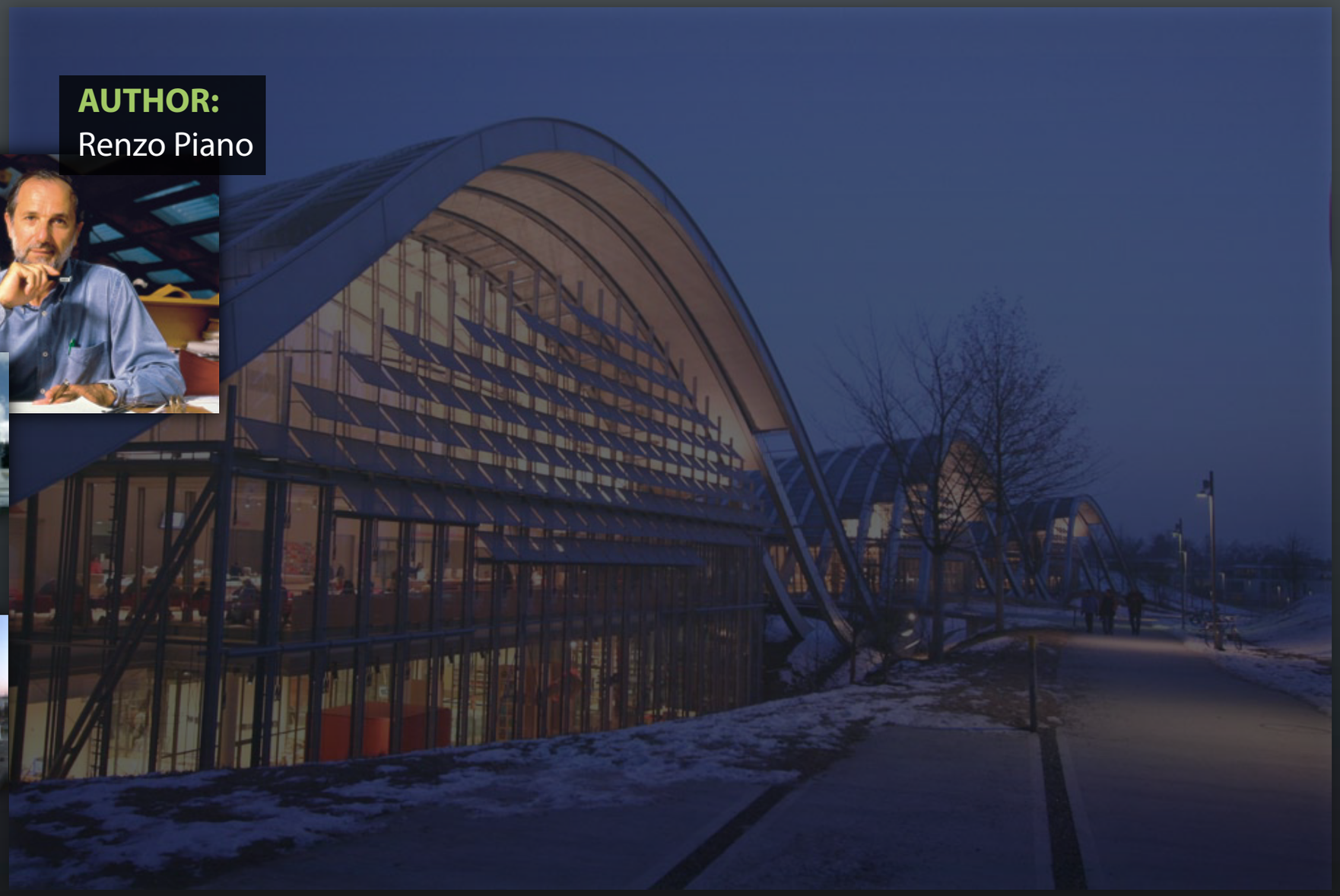

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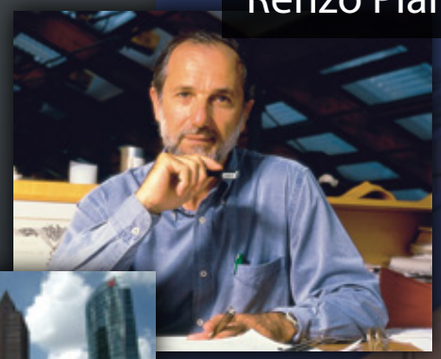

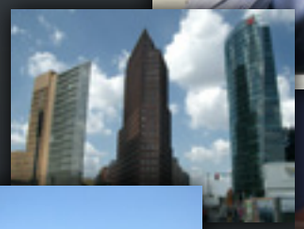

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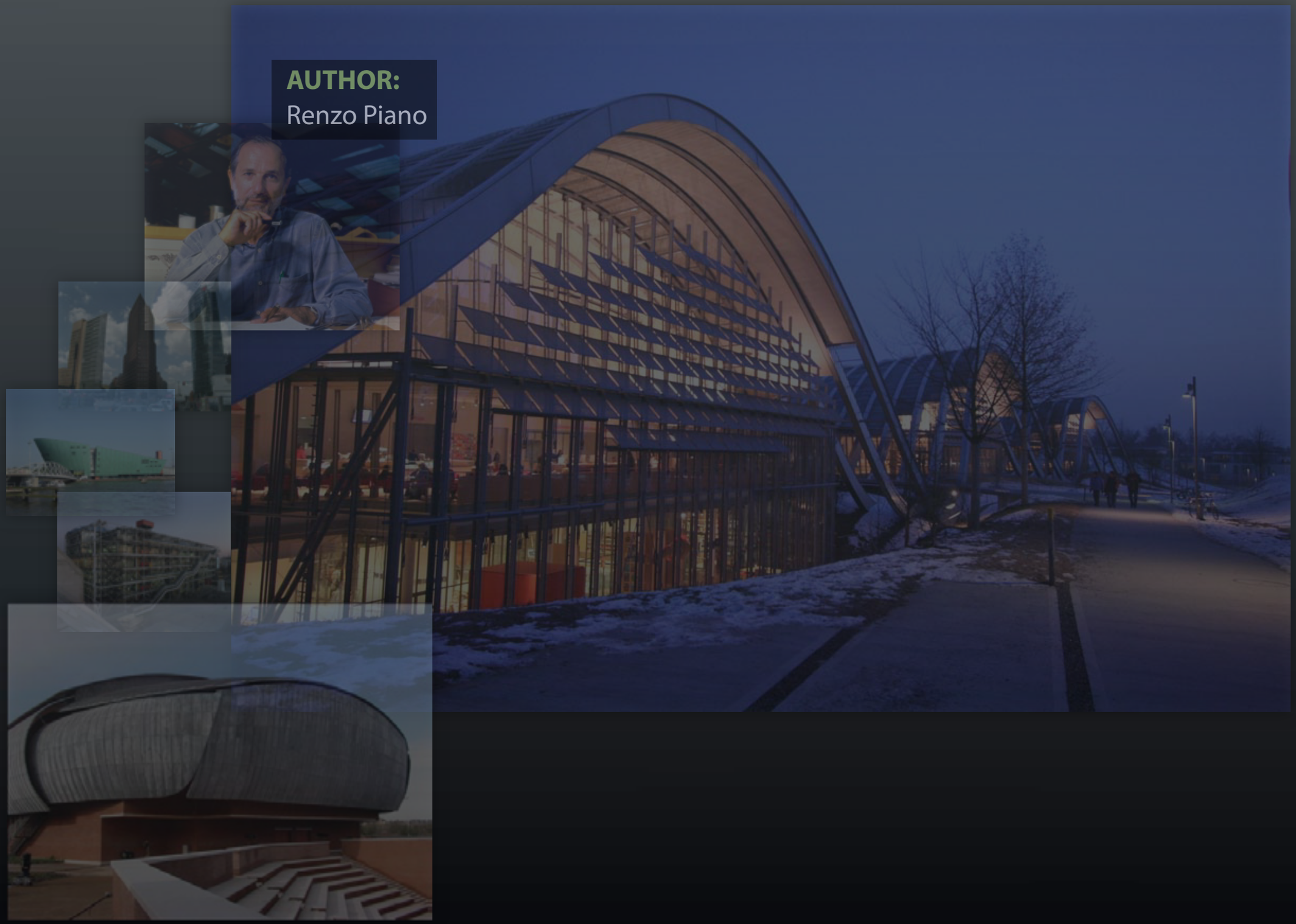

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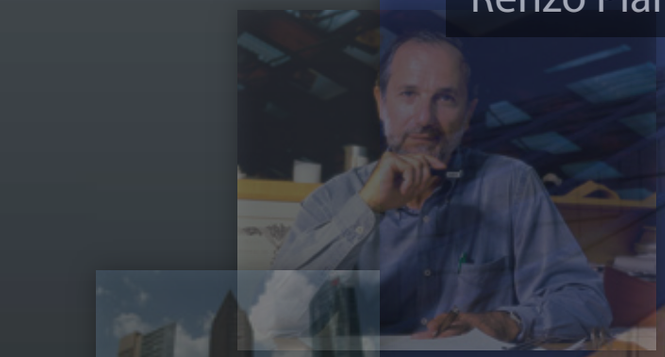

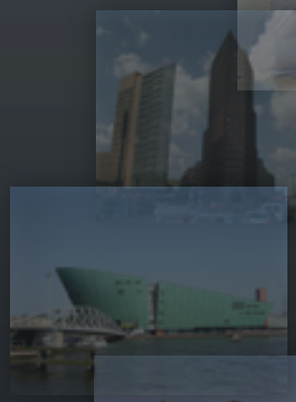

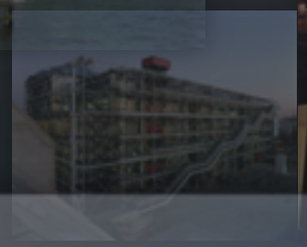

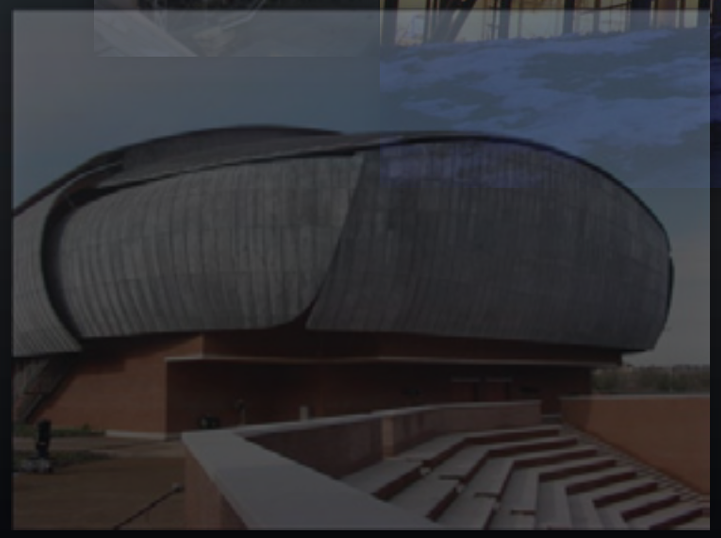

AUTHOR:
Renzo Piano

PROJECT CUE:
continuous, natural,
dynamical, metaphorical (hills)

ARCHITECTURAL TREND:
modern, organic

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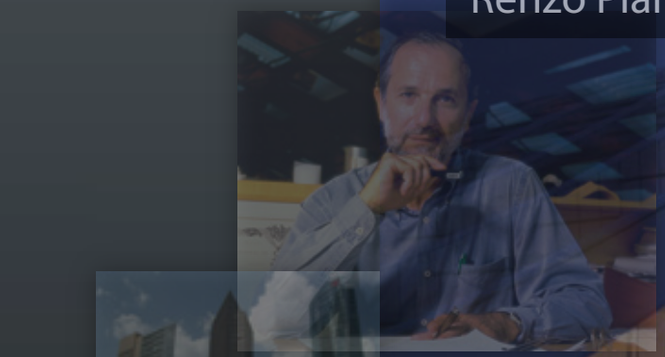

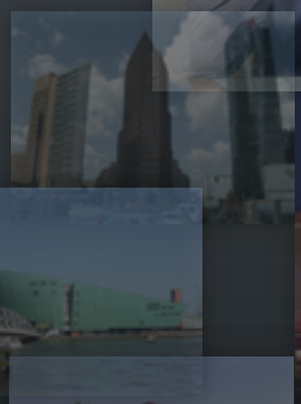

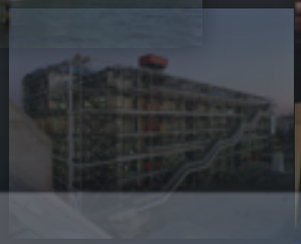

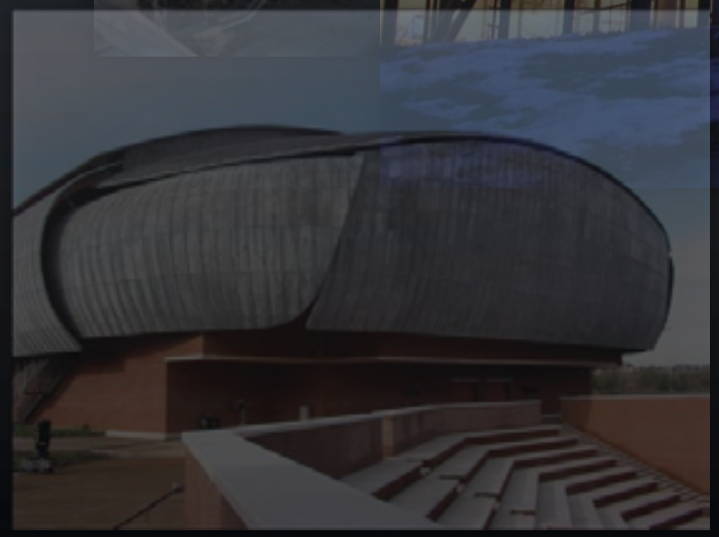

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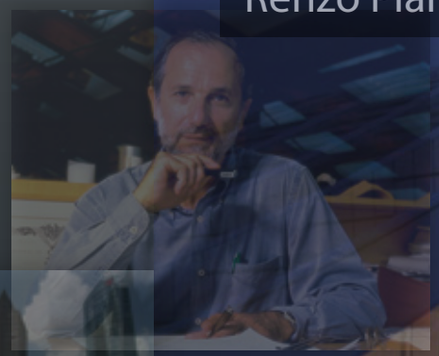

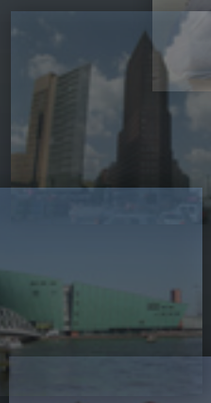

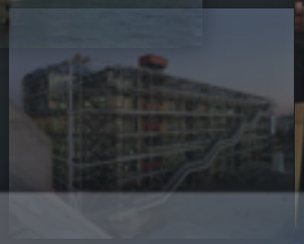

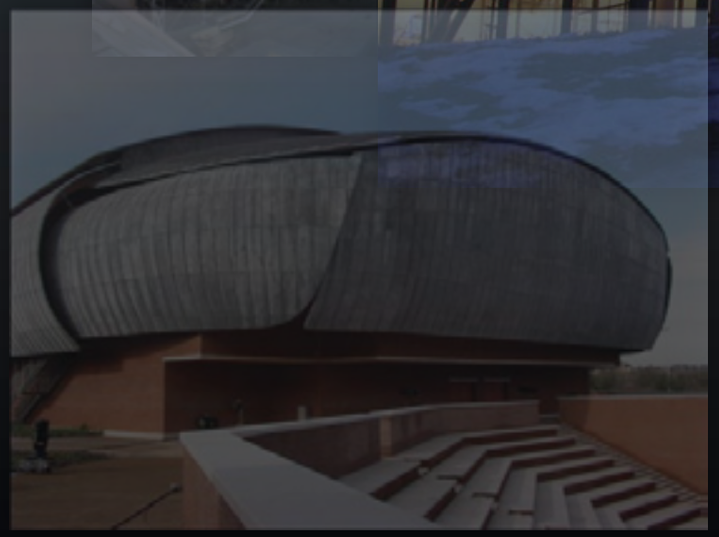

PROJECT CUE:
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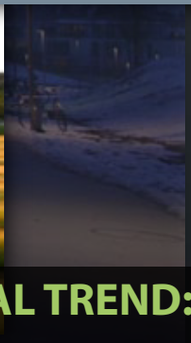

ARCHITECTURAL TREND:
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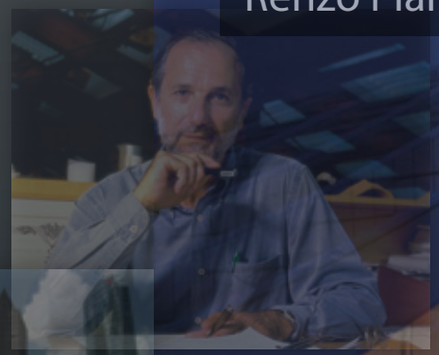

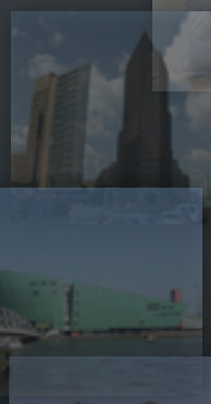

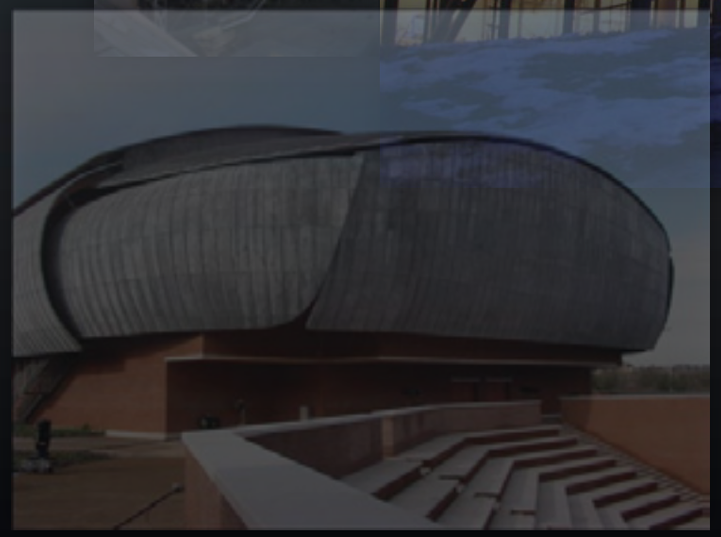

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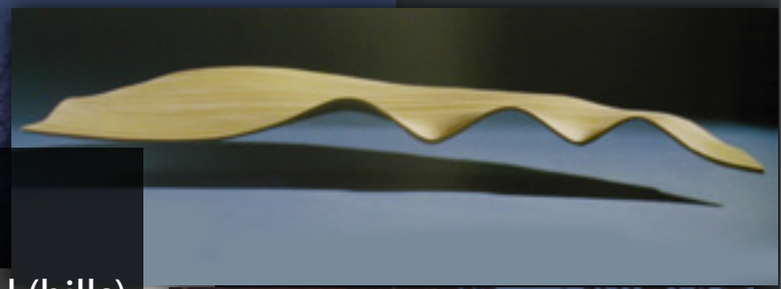

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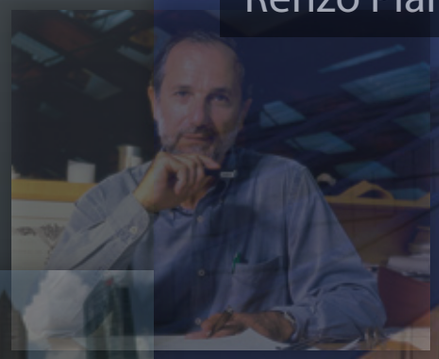

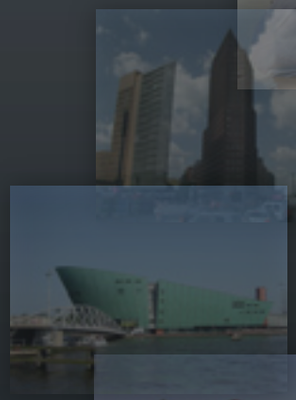

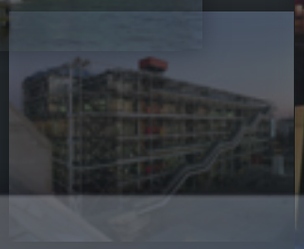

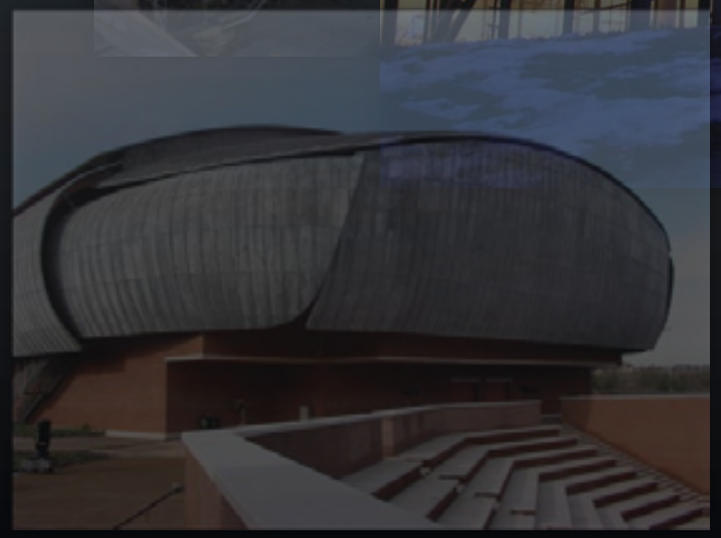

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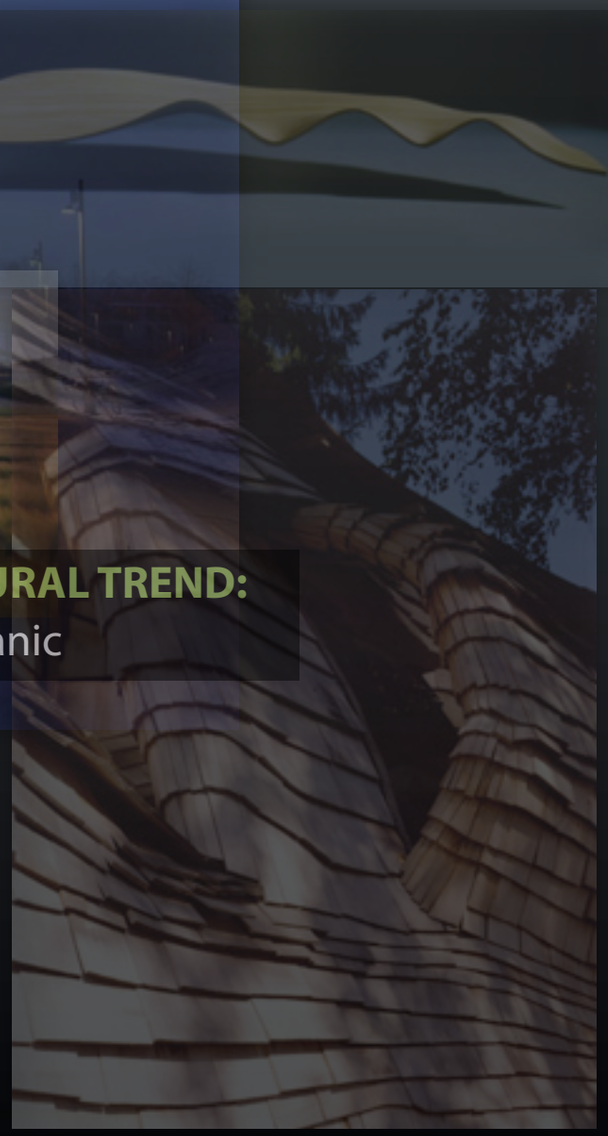

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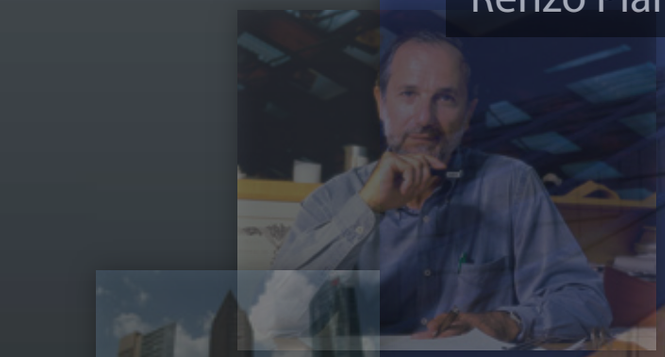

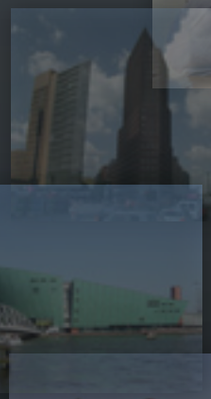

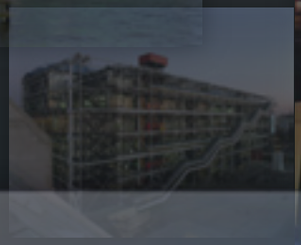

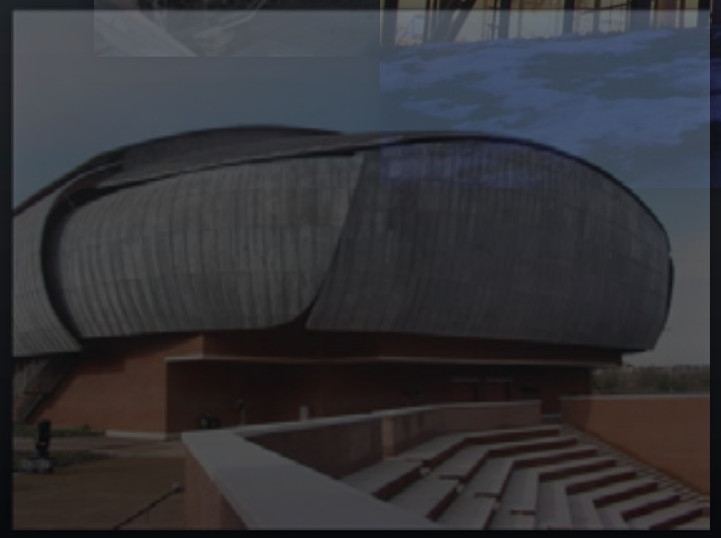

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PROJECT CUE:
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PLANNING ACTIONS:
morphing

ARCHITECTURAL TREND:
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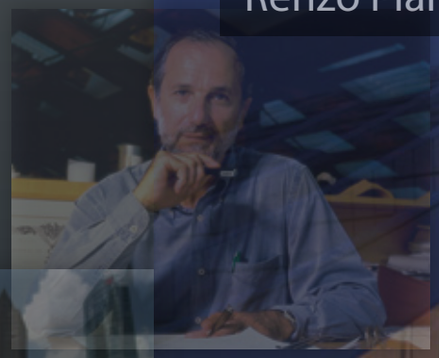

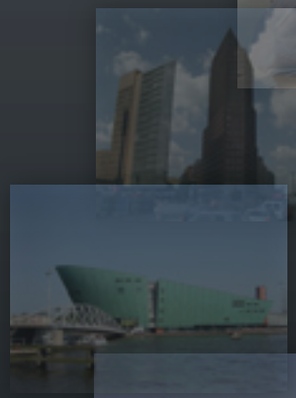

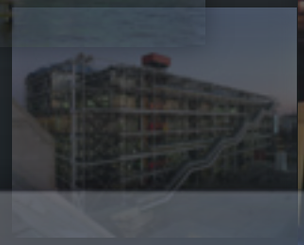

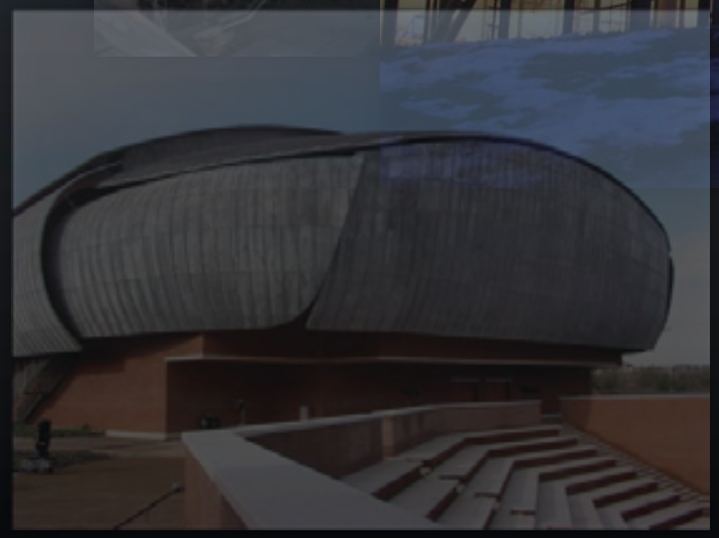

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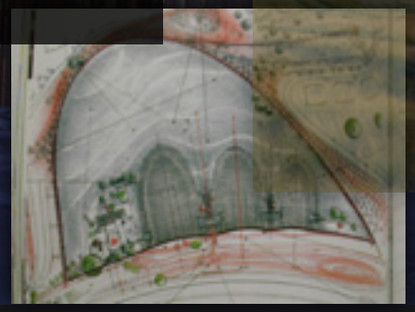

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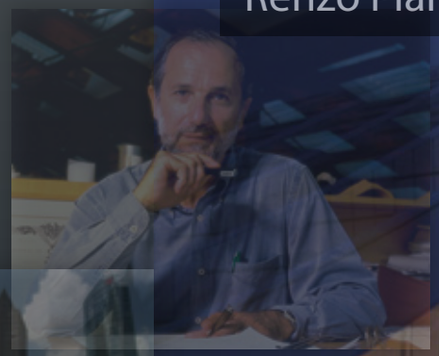

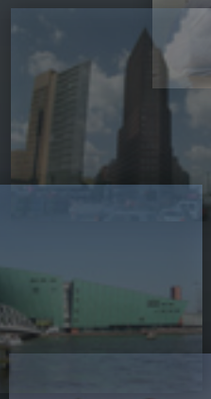

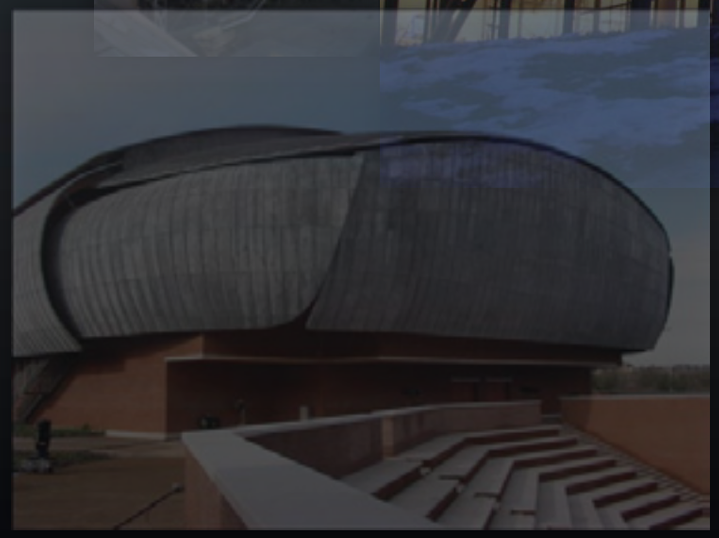

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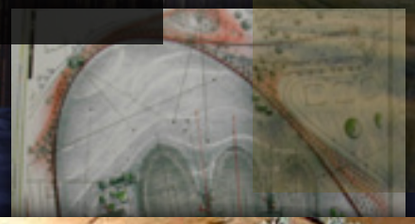

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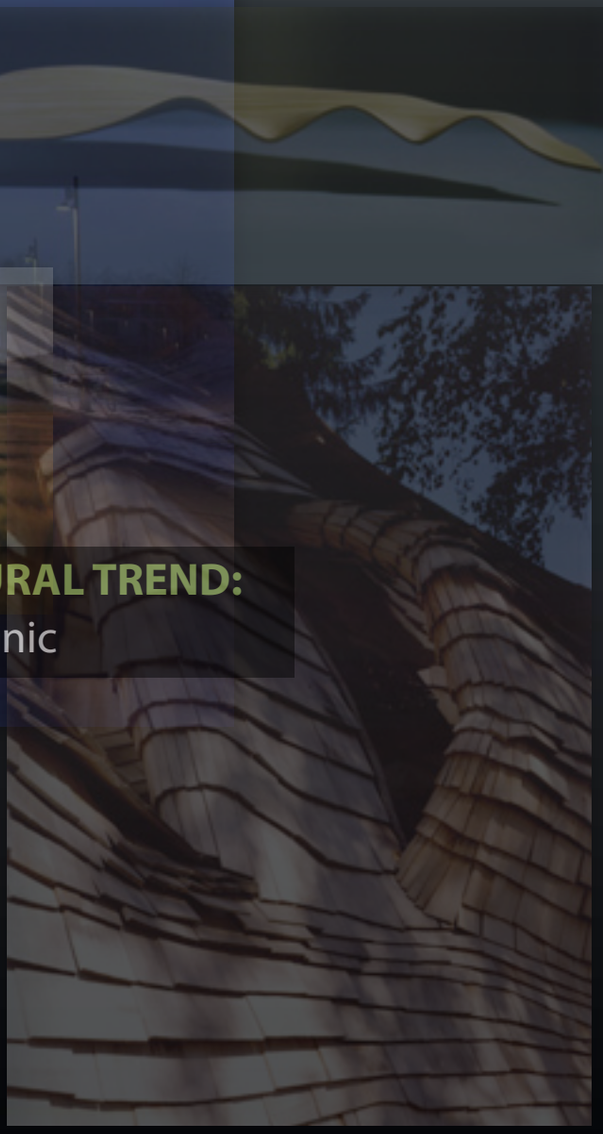

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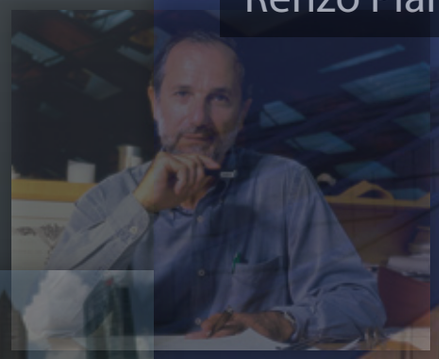

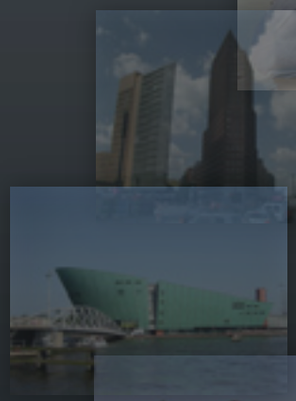

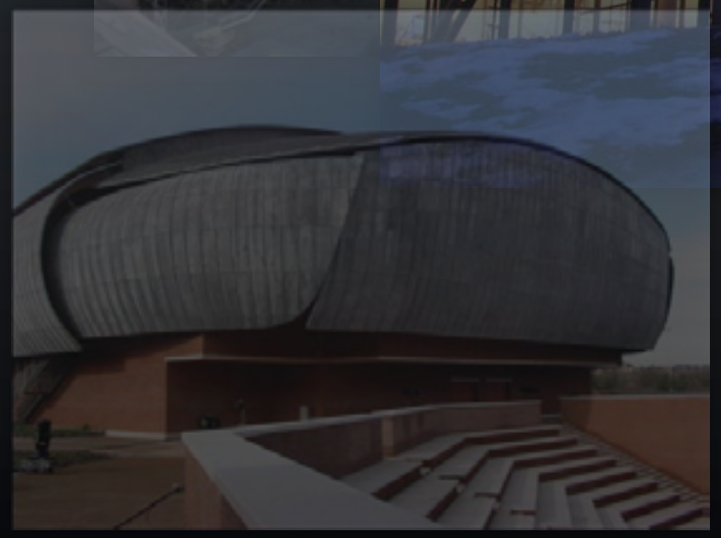

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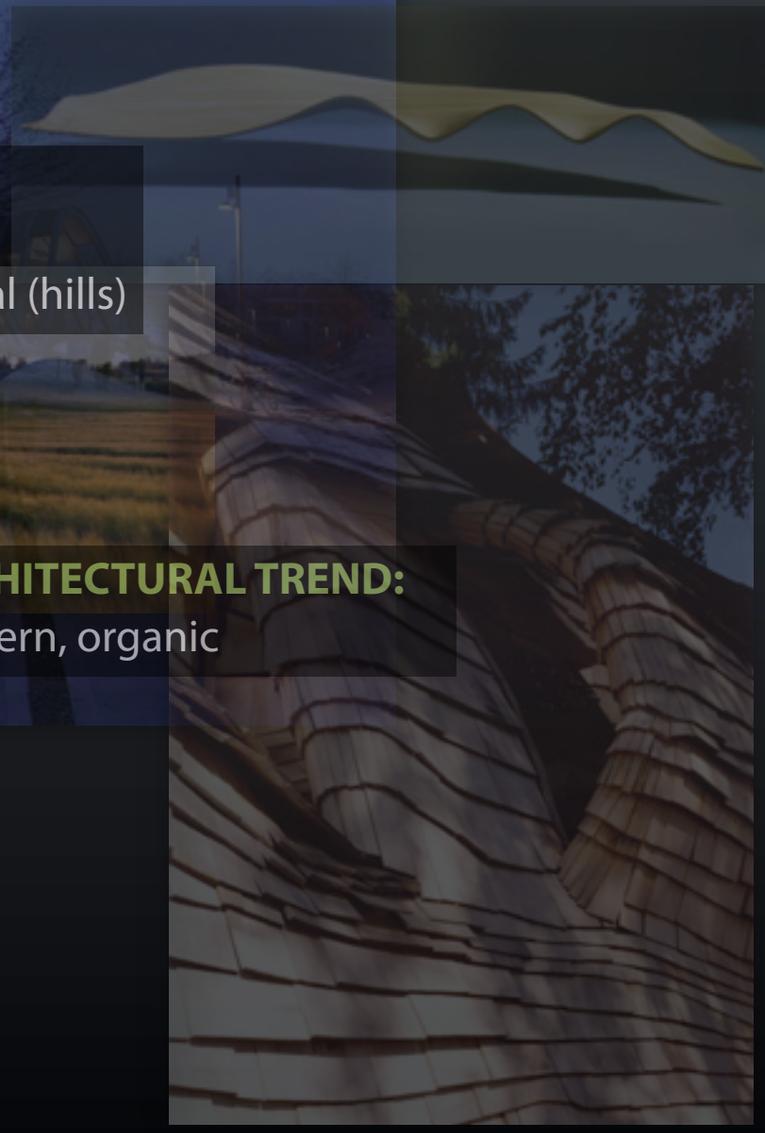

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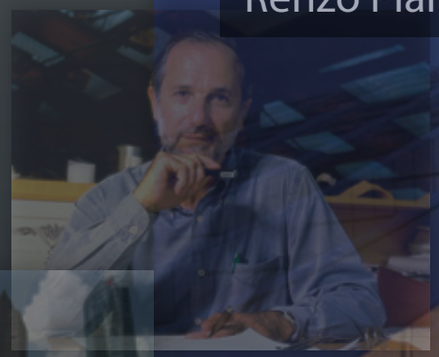
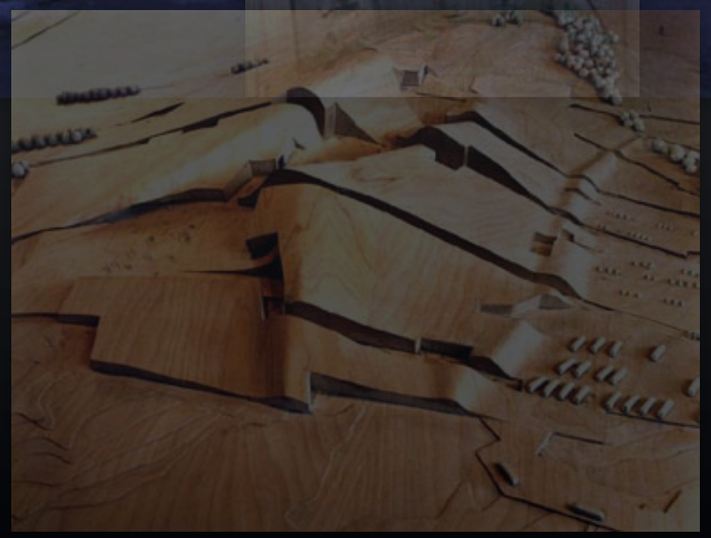


STRUCTURAL PROFILE:
structural frames

PROJECT CUE:
continuous, natural,
dynamical, metaphorical (hills)

PLANNING ACTIONS:
morphing

ARCHITECTURAL TREND:
modern, organic



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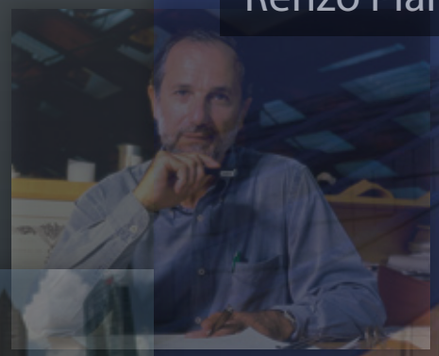
Metadata for
Architectural Contents
in Europe

CONNECTING CONTENTS

AUTHOR:
Renzo Piano

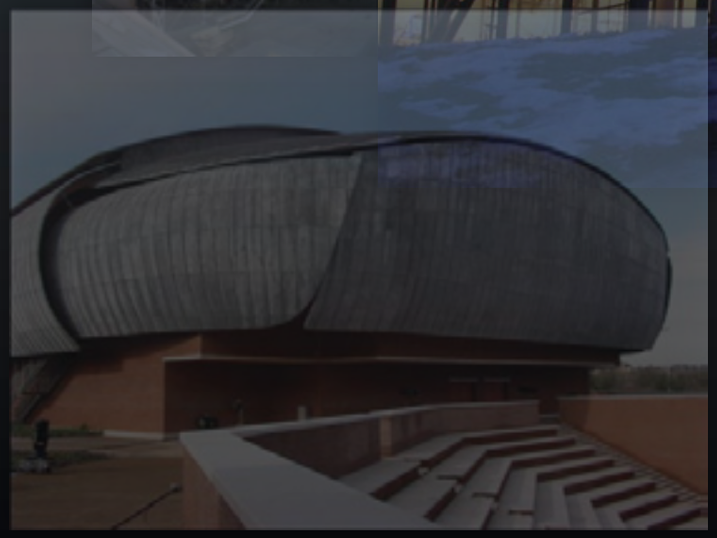


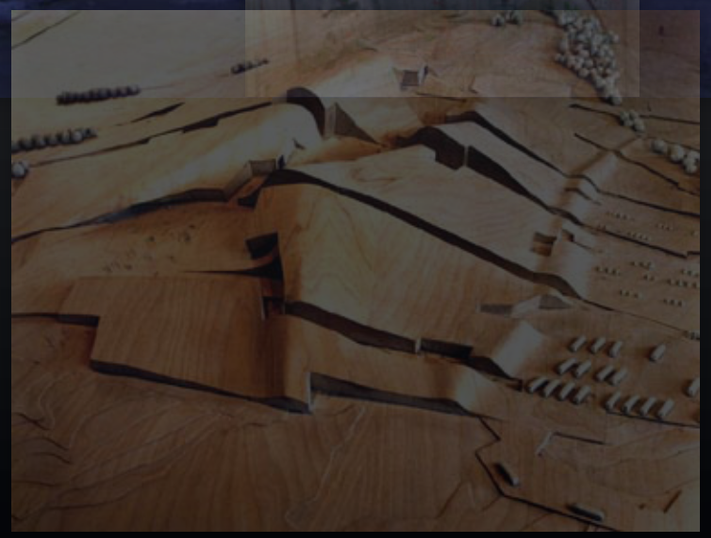
STRUCTURAL PROFILE:
structural frames

PROJECT CUE:
continuous, natural,
dynamical, metaphorical (hills)

PLANNING ACTIONS:
morphing

ARCHITECTURAL TREND:
modern, organic





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Metadata for
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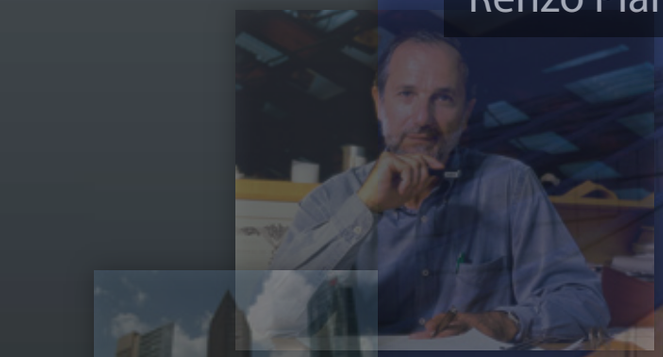
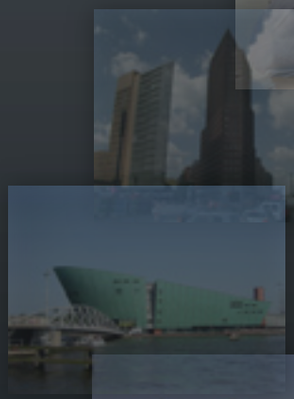
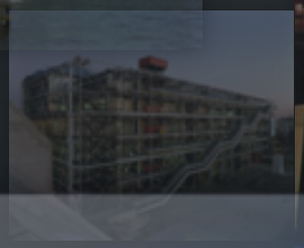
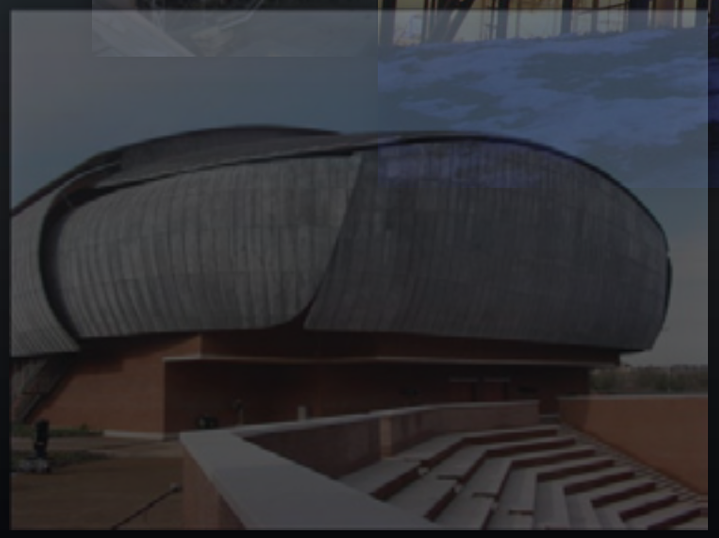
in Europe

CONNECTING CONTENTS









AUTHOR:
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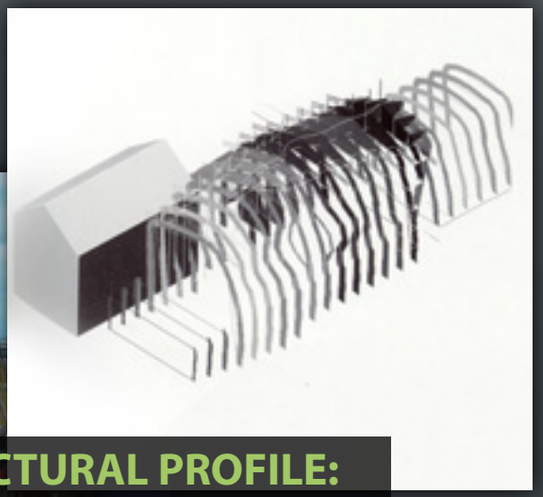

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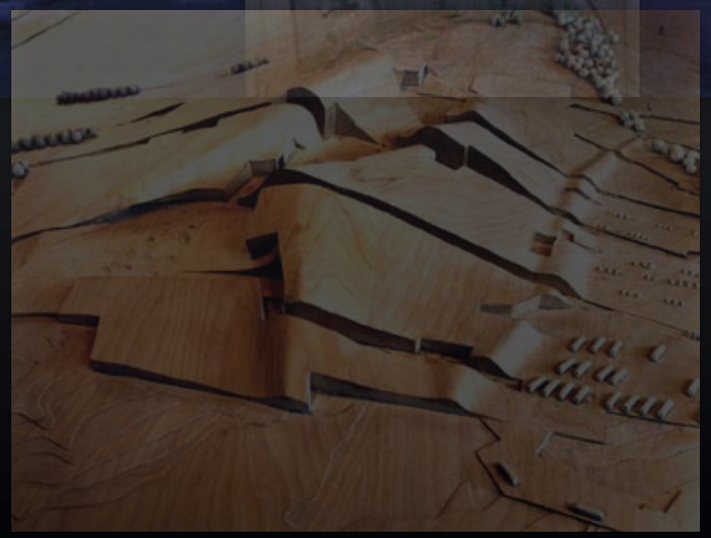
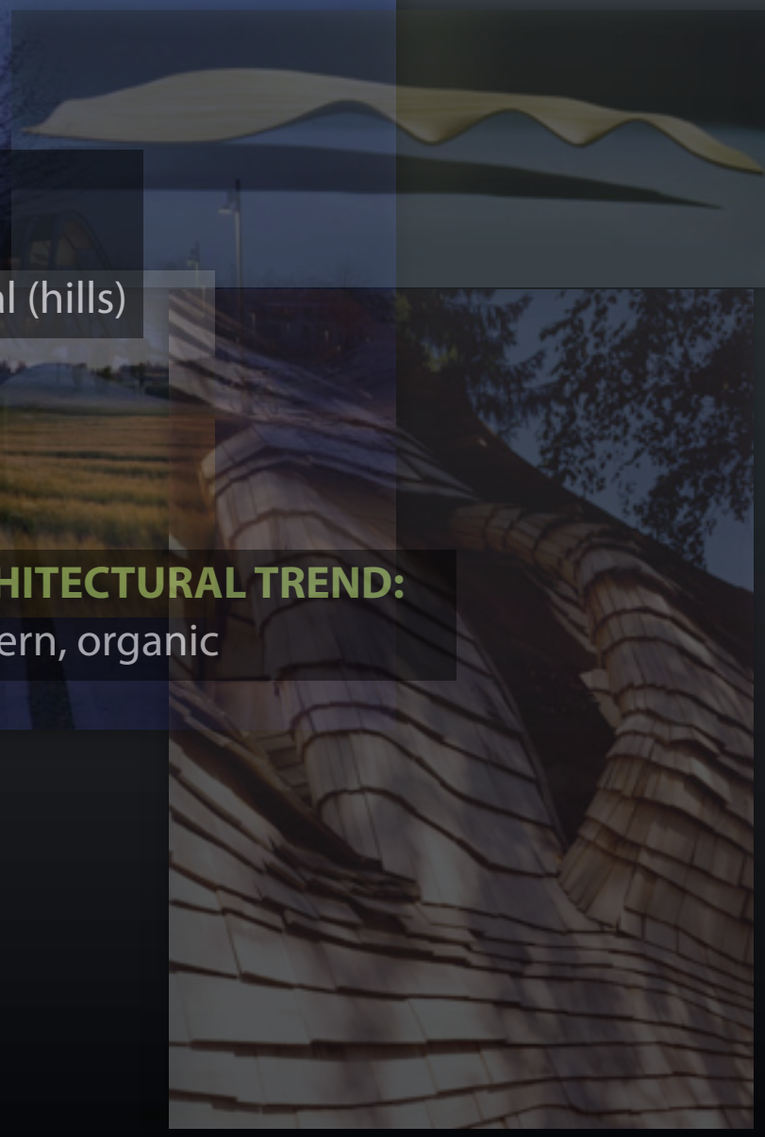
modern, organic





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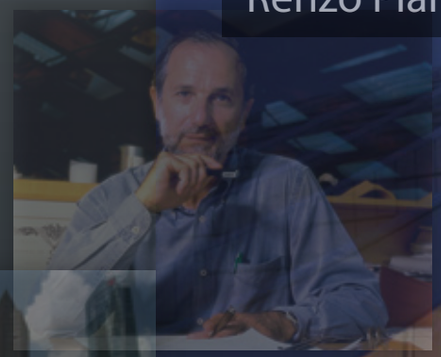
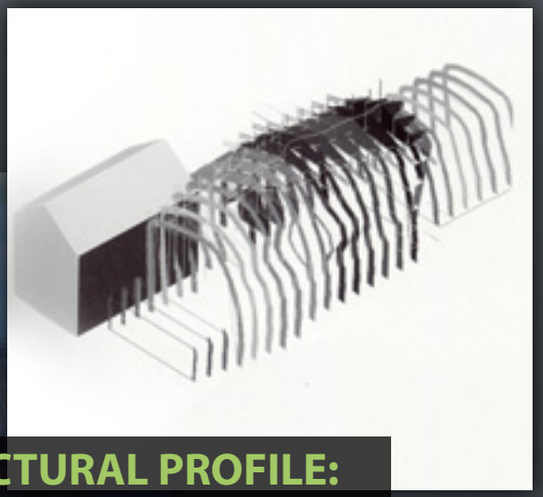
Metadata for
Architectural Contents
in Europe

CONNECTING CONTENTS



AUTHOR:
Renzo Piano



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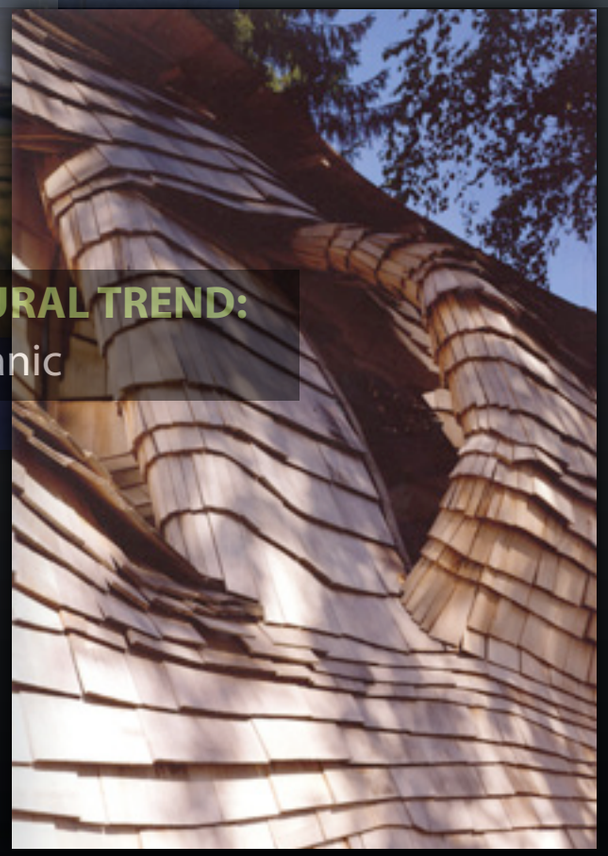

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Metadata for
Architectural Contents
in Europe

CONTENT + MEDIA METADATA

MACE

Metadata for
Architectural Contents
in Europe

CONTENT + MEDIA METADATA

author: Lorenzo Dalla Vecchia

file type: .jpg

time range: Nov 15, 2006

MACE

Metadata for
Architectural Contents
in Europe

CONTENT + MEDIA METADATA

author: Lorenzo Dalla Vecchia
file type: .jpg
time range: Nov 15, 2006

author: Jack Smith
file type: .jpg
time range: Oct 10, 2005

MACE

Metadata for
Architectural Contents
in Europe

CONTENT + MEDIA METADATA

author: Lorenzo Dalla Vecchia

file type: .jpg

time range: Nov 15, 2006

author: Jack Smith

file type: .jpg

time range: Oct 10, 2005

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Metadata for
Architectural Contents
in Europe

CONTENT + MEDIA METADATA

PAUL KLEE MUSEUM

author: Lorenzo Dalla Vecchia

file type: .jpg

time range: Nov 15, 2006

author: Jack Smith

file type: .jpg

time range: Oct 10, 2005

MACE

Metadata for
Architectural Contents
in Europe

CONTENT + MEDIA METADATA

PAUL KLEE MUSEUM

author: Renzo Piano

architectural trend: contemporary, organic

time range: 2003 (year of completion)

project cue: continuous, natural, dynamical, metaphorical (hills)

geographical location: city: Bern
country: Switzerland

author: Lorenzo Dalla Vecchia

file type: .jpg

time range: Nov 15, 2006

author: Jack Smith

file type: .jpg

time range: Oct 10, 2005

MACE

Metadata for
Architectural Contents
in Europe

CONTENT + MEDIA METADATA

PAUL KLEE MUSEUM

author: Renzo Piano

architectural trend: contemporary, organic

time range: 200[illegible] (year of co[illegible]pletion)

project c[illegible]: co[illegible]inuous, na[illegible]ynamical, metaphorical (hills)

geographical location: city: Bern
country: Switzerland

CONTENT

author: Lorenzo Dalla Vecchia

file type: .jpg

time range: Nov 15, 2006

author: Jack Smith

file type: .jpg

time range: Oct 10, 2005

MACE

Metadata for
Architectural Contents
in Europe

CONTENT + MEDIA METADATA

PAUL KLEE MUSEUM

author: Renzo Piano

architectural trend: contemporary, organic

time range: 200[illegible] (year of co[illegible]ion

project c[illegible]: co[illegible]inuous, na[illegible]ynamical, metaphorical (hills)

geographical location: city: Bern
country: Switzerland

CONTENT

author: Lorenzo Dalla Vecchia

file type: .jpg

time range: Nov 15, 2006

author: Jack Smith

file type: .jpg

time range: Oct 10, 2005

MEDIA

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Metadata for
Architectural Contents
in Europe

APPLICATION PROFILE

LOM IEEE 1484.12.1 Standard for Learning Object Metadata

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APPLICATION PROFILE

LOM IEEE 1484.12.1 Standard for Learning Object Metadata

+

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APPLICATION PROFILE

LOM IEEE 1484.12.1 Standard for Learning Object Metadata

+

IDENTIFICATION

name author name location time range

project type intervention type

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Architectural Contents
in Europe

APPLICATION PROFILE

LOM IEEE 1484.12.1 Standard for Learning Object Metadata

+

IDENTIFICATION

name author name location time range
project type intervention type

CONCEPTUAL DESIGN

project cue planning actions
relation with the context formal features
perceptive qualities formal typology
cultural and historical references

MACE

Metadata for
Architectural Contents
in Europe

APPLICATION PROFILE

LOM IEEE 1484.12.1 Standard for Learning Object Metadata

+

IDENTIFICATION

name author name location time range
project type intervention type

CONCEPTUAL DESIGN

project cue planning actions
relation with the context formal features
perceptive qualities formal typology
cultural and historical references

TECHNICAL DESIGN

structure profile technological profile
system profile restoration technologies

MACE

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in Europe

APPLICATION PROFILE

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project type intervention type

CONCEPTUAL DESIGN

project cue planning actions
relation with the context formal features
perceptive qualities formal typology
cultural and historical references

TECHNICAL DESIGN

structure profile technological profile
system profile restoration technologies

MANAGEMENT

Planning Quality Control Safety and health

MACE

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Architectural Contents
in Europe

APPLICATION PROFILE

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+

IDENTIFICATION

name author name location time range
project type intervention type

CONCEPTUAL DESIGN

project cue planning actions
relation with the context formal features
perceptive qualities formal typology
cultural and historical references

TECHNICAL DESIGN

structure profile technological profile
system profile restoration technologies

MANAGEMENT

Planning Quality Control Safety and health

CONSTRUCTING

Phase Activity Machinery and equipment

MACE

Metadata for
Architectural Contents
in Europe

APPLICATION PROFILE

LOM IEEE 1484.12.1 Standard for Learning Object Metadata

+

IDENTIFICATION

name author name location time range
project type intervention type

MANAGEMENT

Planning Quality Control Safety and health

CONCEPTUAL DESIGN

project cue planning actions
relation with the context formal features
perceptive qualities formal typology
cultural and historical references

CONSTRUCTING

Phase Activity Machinery and equipment

TECHNICAL DESIGN

structure profile technological profile
system profile restoration technologies

THEORIES & CONCEPTS

Theoretical concepts Historical, philosophical,
geographical categories

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Metadata for
Architectural Contents
in Europe

APPLICATION PROFILE

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APPLICATION PROFILE

LOM IEEE 1484.12.1 Standard for Learning Object Metadata

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SOCIAL & ATTENTION METADATA

Attention, ratings, tags -> personalization & recommendation

CAM (Contextualized Attention Metadata)

MACE

Metadata for
Architectural Contents
in Europe

APPLICATION PROFILE

LOM IEEE 1484.12.1 Standard for Learning Object Metadata

+

SOCIAL & ATTENTION METADATA

Attention, ratings, tags -> personalization & recommendation

CAM (Contextualized Attention Metadata)

COMPETENCE METADATA

11 core competences

Integration with TENcompetence client

MACE

Metadata for
Architectural Contents
in Europe

APPLICATION PROFILE

LOM IEEE 1484.12.1 Standard for Learning Object Metadata

+

SOCIAL & ATTENTION METADATA

Attention, ratings, tags -> personalization & recommendation

CAM (Contextualized Attention Metadata)

COMPETENCE METADATA

11 core competences

Integration with TENcompetence client

CONTEXT METADATA

captures preconditions and surroundings of an object
such as geo-location, environment, etc.

MACE

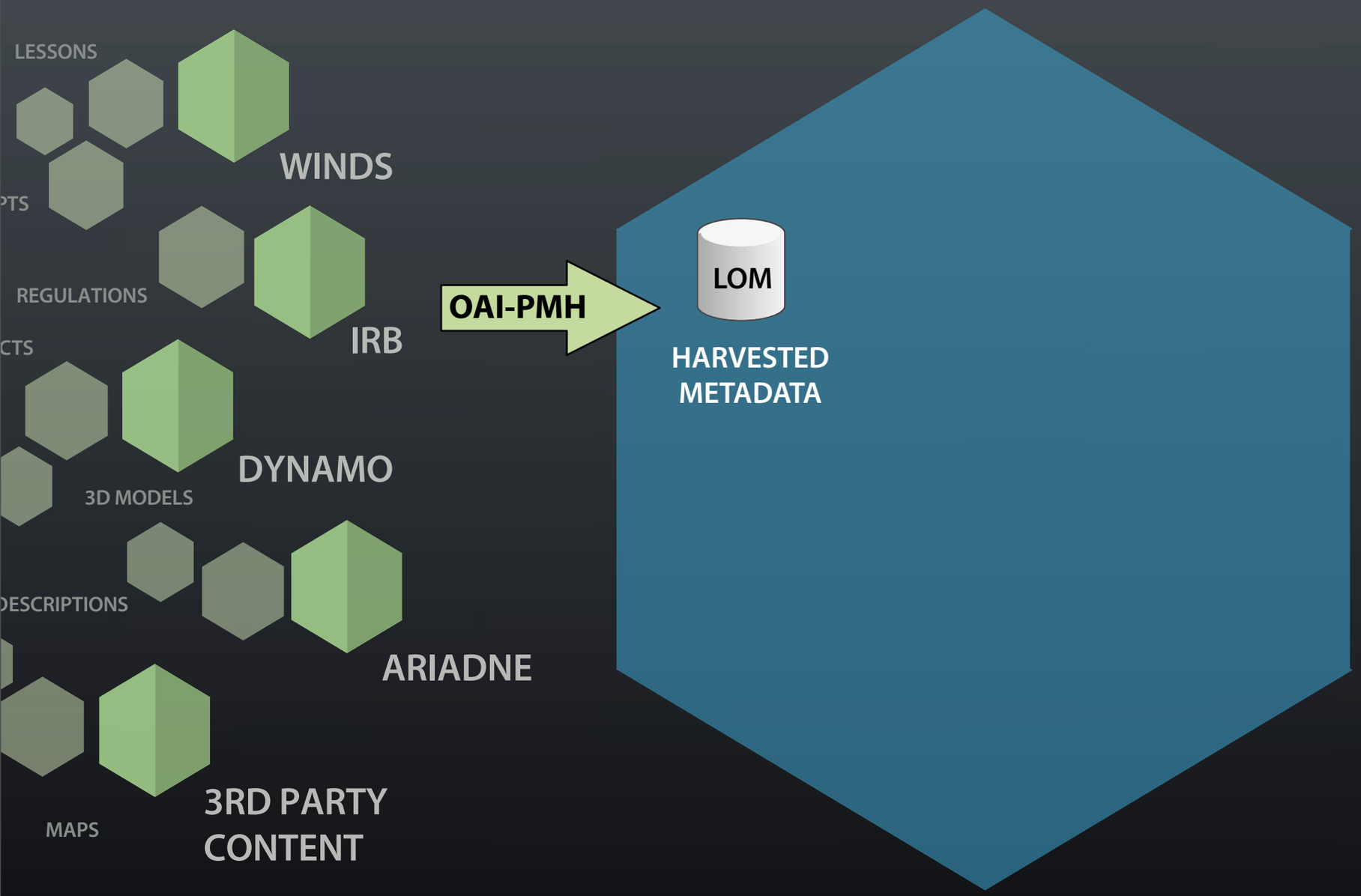
Metadata for
Architectural Contents
in Europe

INFRASTRUCTURE

MACE

Metadata for
Architectural Contents
in Europe

INFRASTRUCTURE



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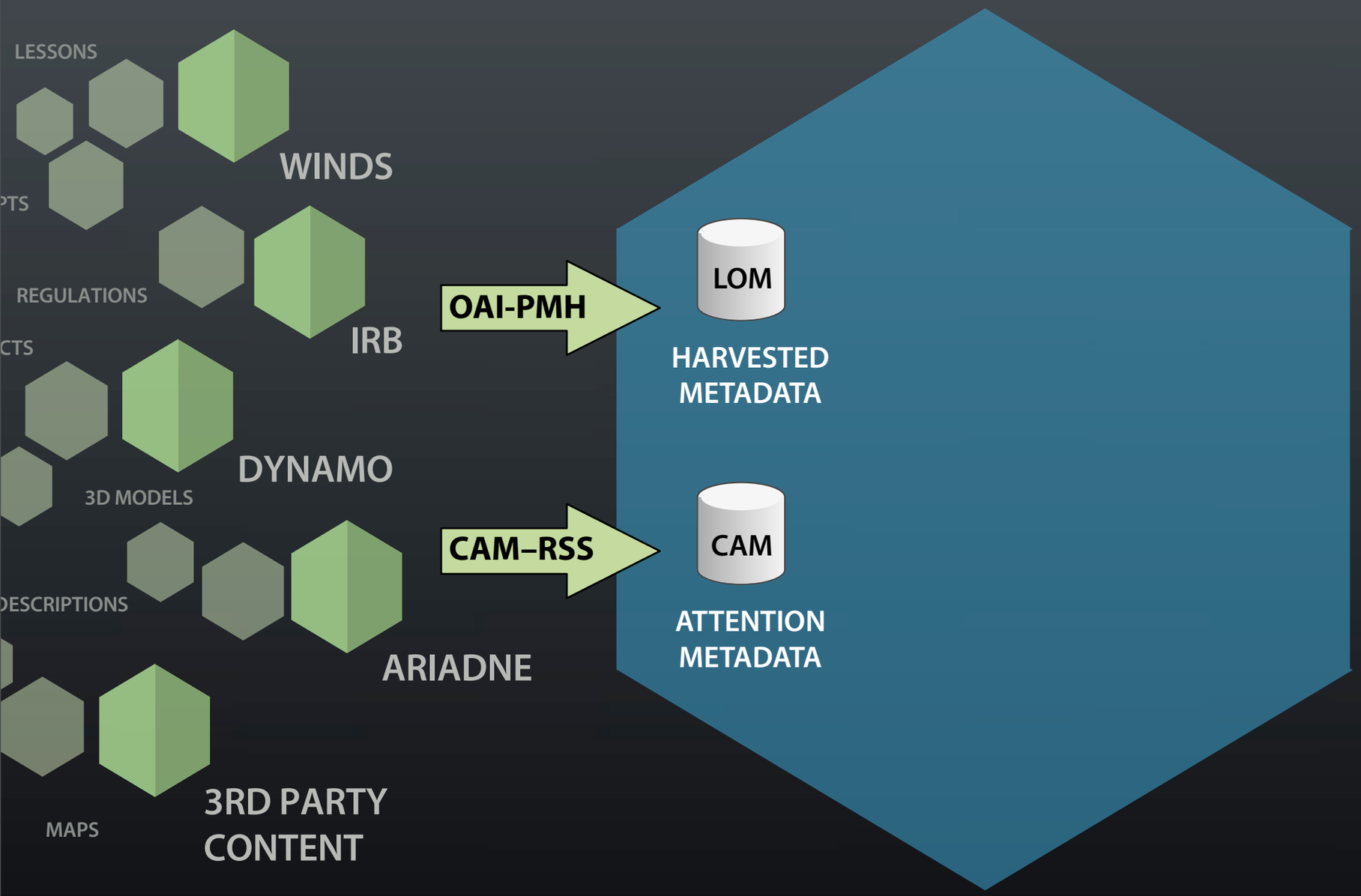
in Europe

INFRASTRUCTURE



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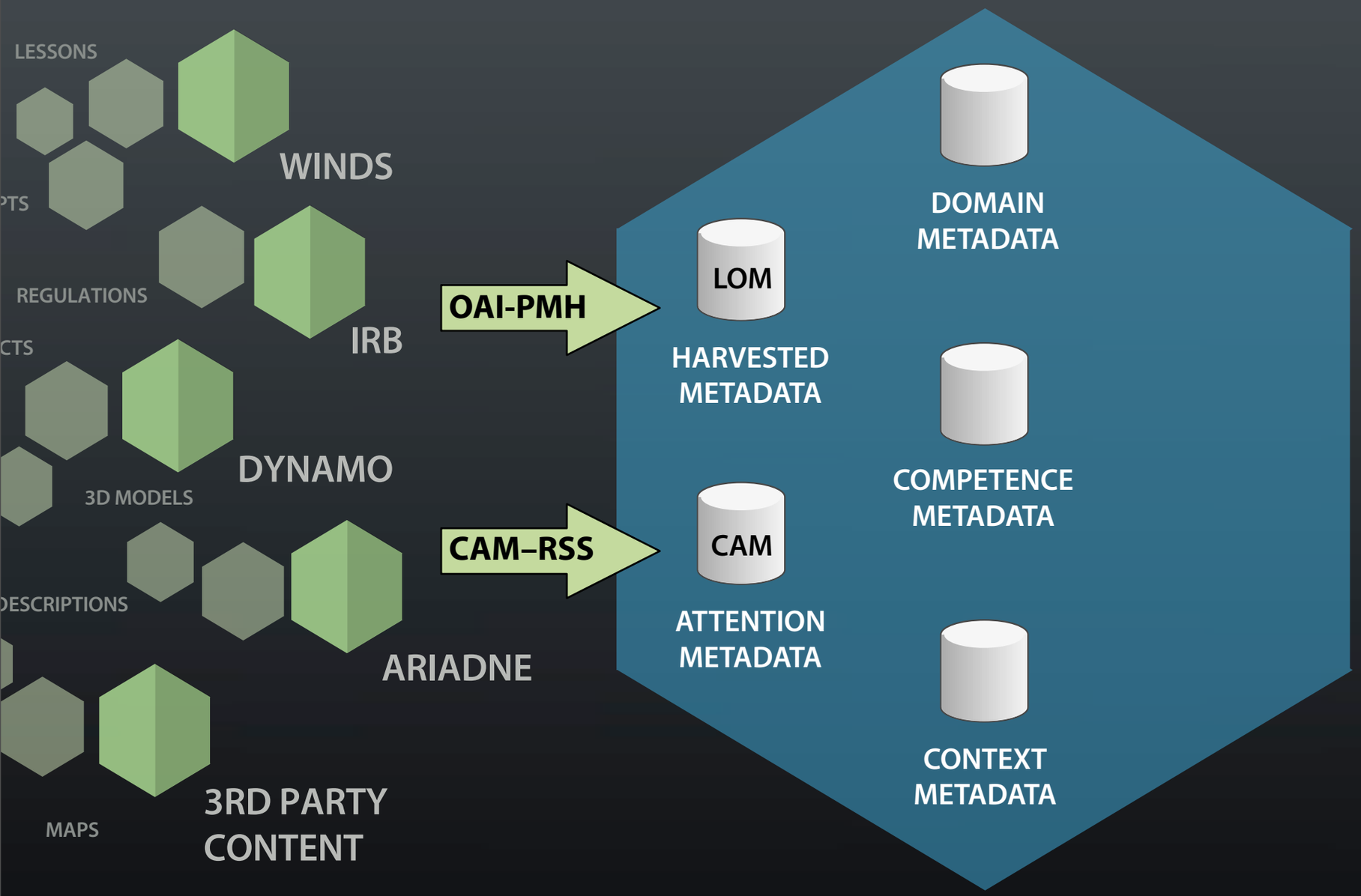
INFRASTRUCTURE



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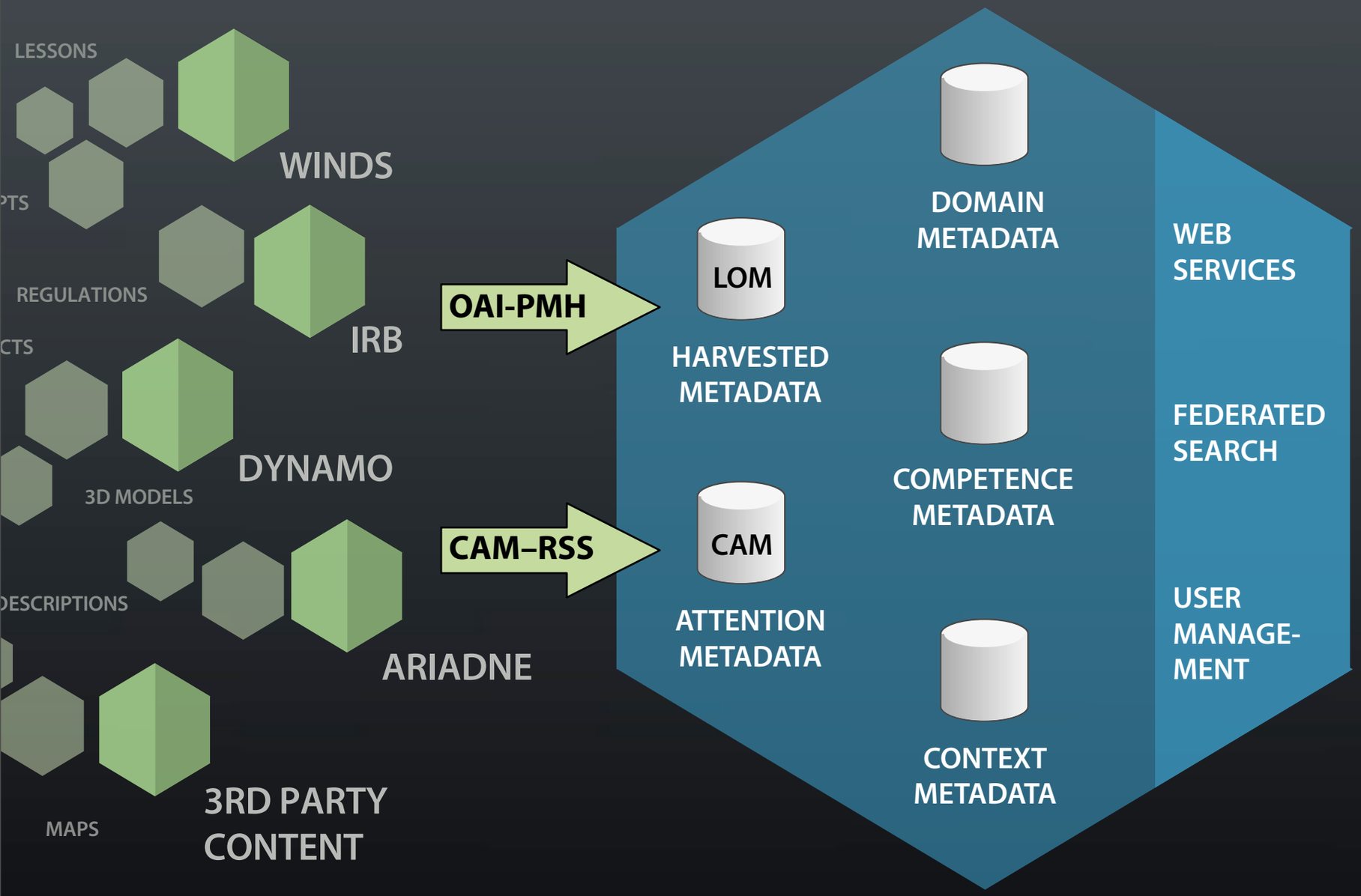
INFRASTRUCTURE



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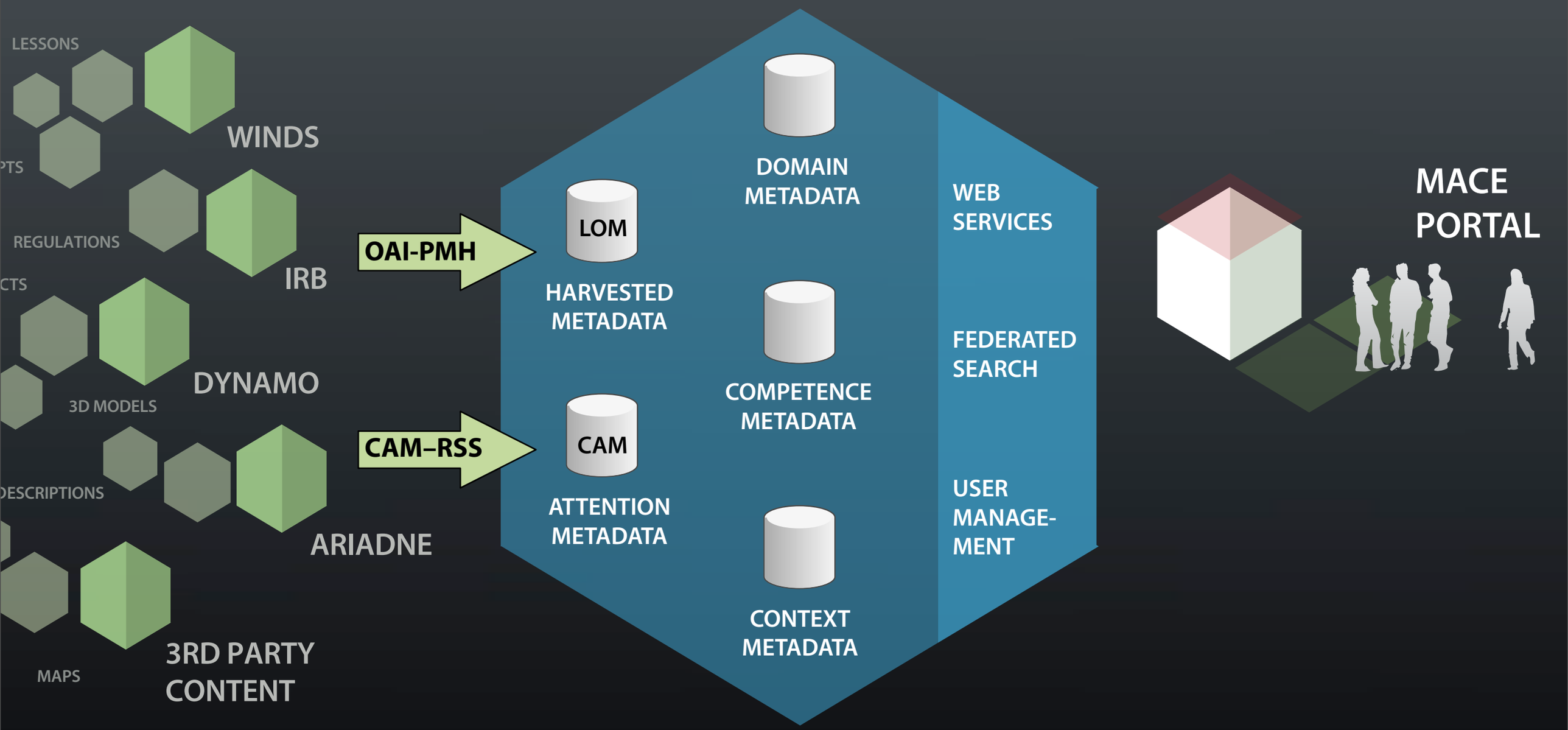
INFRASTRUCTURE



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Metadata for
Architectural Contents
in Europe

INFRASTRUCTURE

LESSONS

WINDS

PTS

REGULATIONS

IRB

CTS

DYNAMO

3D MODELS

DESCRIPTIONS

ARIADNE

MAPS

3RD PARTY
CONTENT

OAI-PMH

CAM–RSS

LOM

HARVESTED
METADATA

CAM

ATTENTION
METADATA

DOMAIN
METADATA

COMPETENCE
METADATA

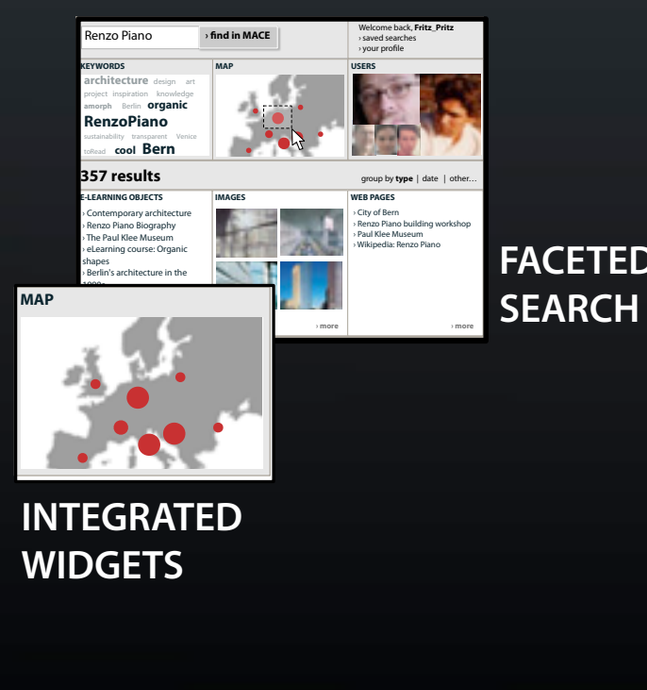
CONTEXT
METADATA

WEB
SERVICES

FEDERATED
SEARCH

USER
MANAGE-
MENT

MACE
PORTAL



FACETED
SEARCH

INTEGRATED
WIDGETS

MACE

Metadata for
Architectural Contents
in Europe

INFRASTRUCTURE

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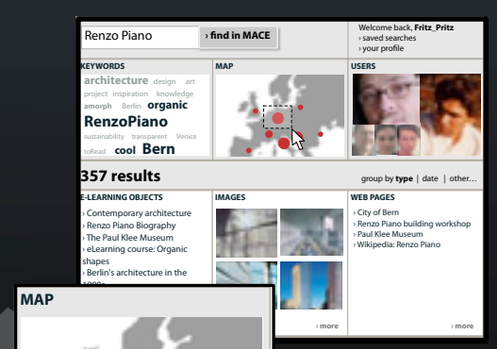
PORTAL



FACETED
SEARCH

INTEGRATED
WIDGETS

IMPROVED ACCESS

MACE

Metadata for Architectural Contents in Europe

INFRASTRUCTURE

ENRICHED METADATA

AUTOMATIC METHODS

EXPERT INDEXERS

ARCHITECTURAL COMMUNITY

LESSONS

WINDS

PTS

REGULATIONS

IRB

CTS

DYNAMO

3D MODELS

DESCRIPTIONS

ARIADNE

MAPS

3RD PARTY CONTENT

OAI-PMH

CAM–RSS

LOM

HARVESTED METADATA

CAM

ATTENTION METADATA

DOMAIN METADATA

COMPETENCE METADATA

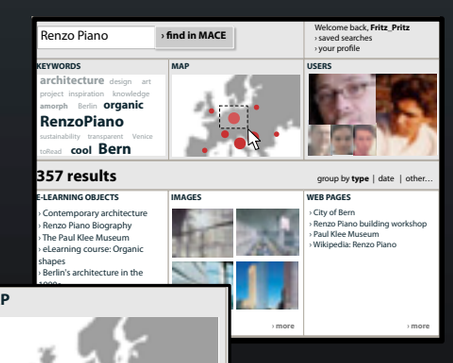
CONTEXT METADATA

WEB SERVICES

FEDERATED SEARCH

USER MANAGE-MENT

MACE PORTAL



FACETED SEARCH

INTEGRATED WIDGETS

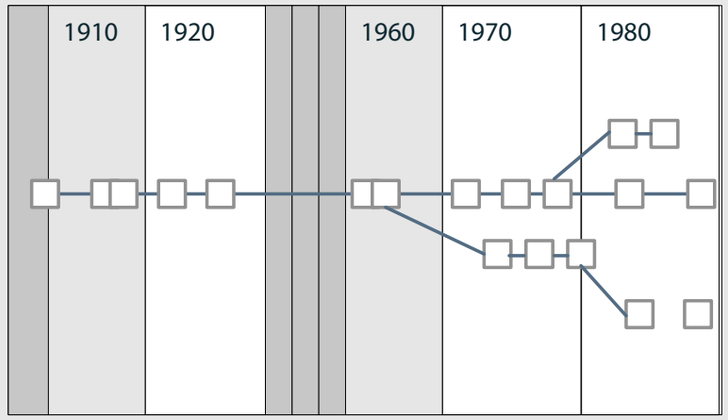
IMPROVED ACCESS

MACE | Metadata for Architectural Contents in Europe

WIDGETS

MAP

TIMELINE



ATTENTION

Rank	★★★☆☆	(8 ratings)
Views	(134)	
Annotations	(4)	read | write
Trackbacks	(5)	read | write

KEYWORDS

architecture design art project inspiration knowledge **amorph** Berlin **organic** **RenzoPiano** sustainability transparent Venice toRead **Bern**

TECHNICAL DESIGN

Project cue	Formal features	Perceptive qualities
strong	alignment	bright
dynamical	balance	reflecting
slender		translucent
flexible	symmetry	

COMPETENCIES

fine arts	urban design	design skills	understand design
understand structural design	physical problems	understand profession	understand methods
understand relationships	history and theories	knowlede of the industries	

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EDIT IN PLACE

KEYWORDS

architecture design art project inspiration knowledge **amorph** Berlin **organic** **RenzoPiano** sustainability transparent Venice toRead **cool** **Bern**

a

› add

architecture

amorph

MAP

RELATED LINKS

› City of Bern confirm | reject

› Renzo Piano building workshop

› Paul Klee Museum

› eLearning course: Organic shapes

› suggest a link

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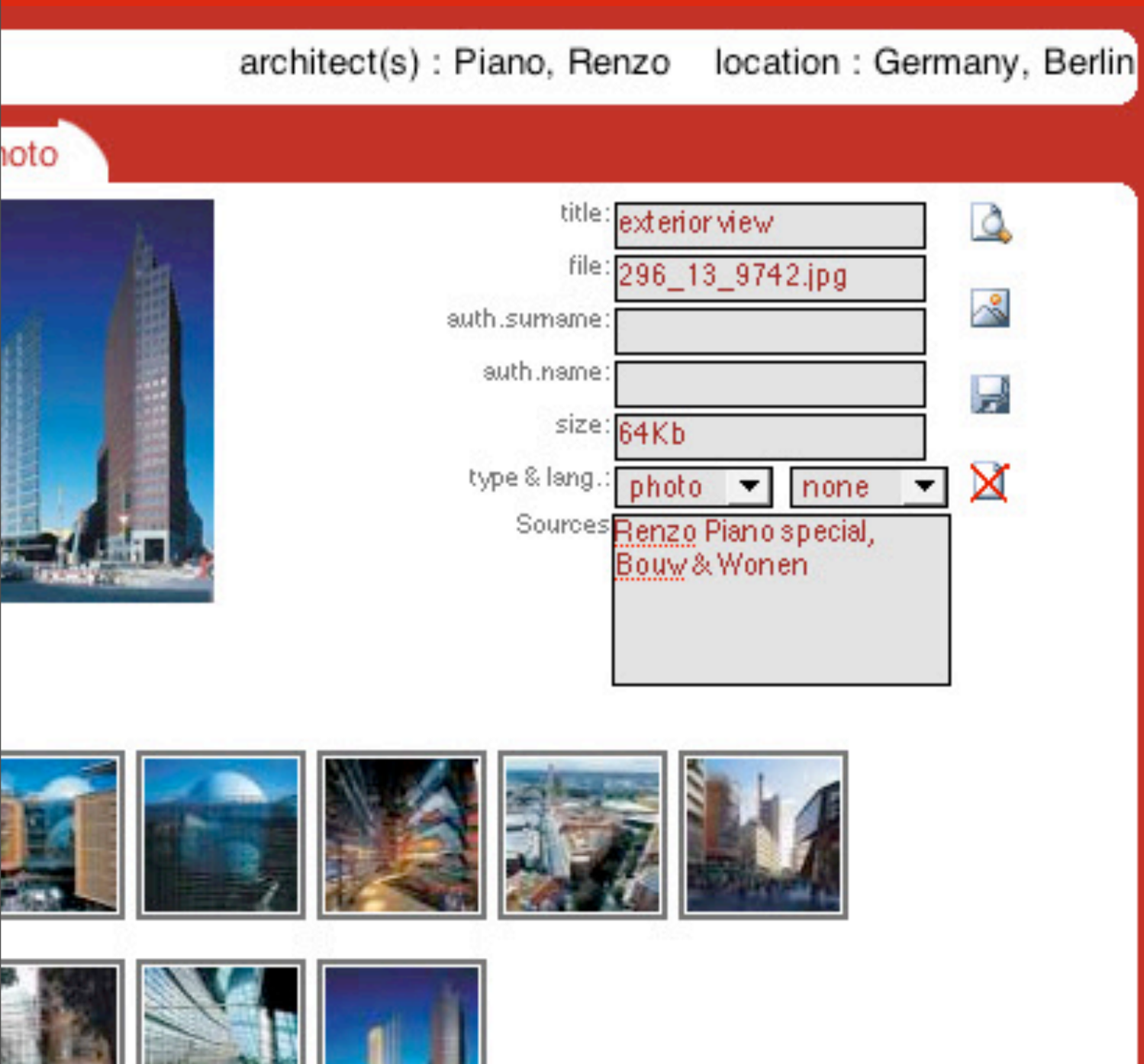
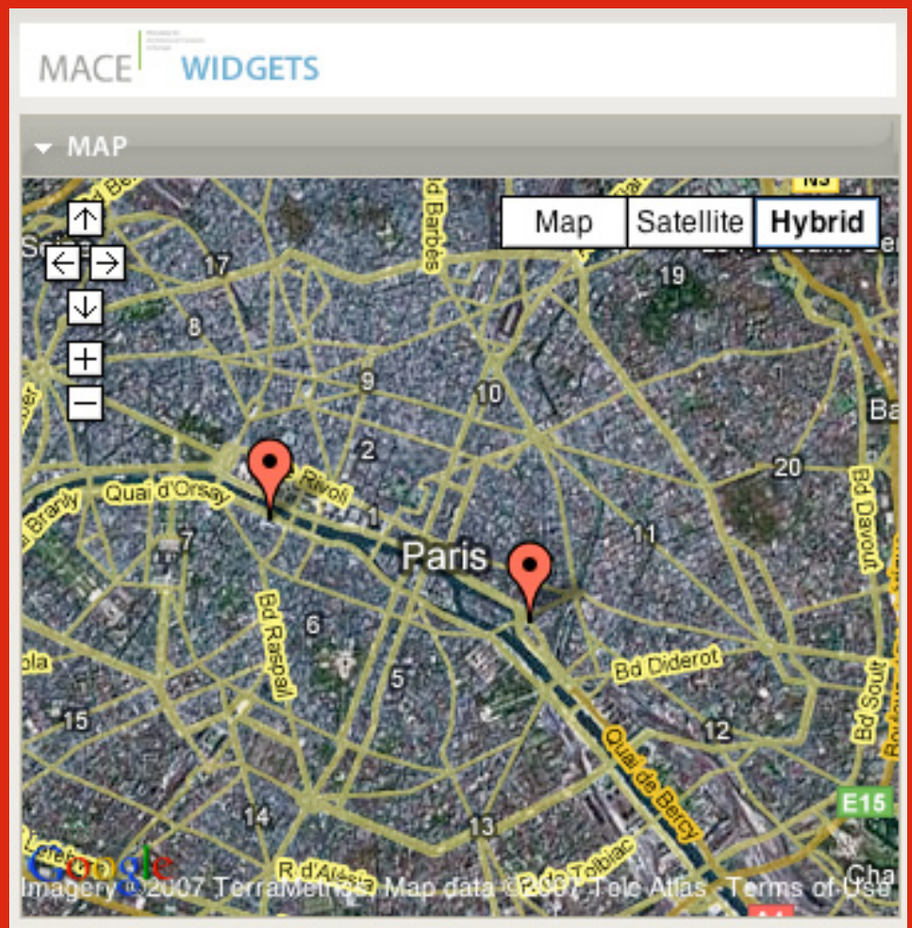
EMBEDDED WIDGETS





RELATED LINKS

› City of Bern
› Renzo Piano building workshop
› Paul Klee Museum
› eLearning course: Organic shapes

› add to my collections
› see all MACE information for this content

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Architectural Contents
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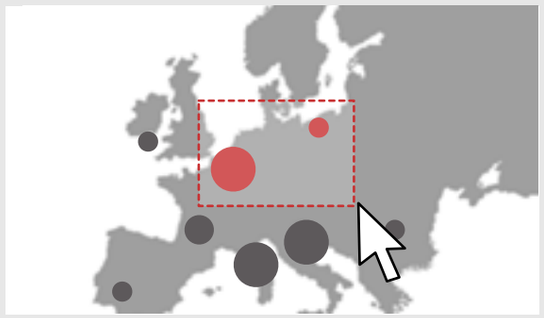
FACETED SEARCH

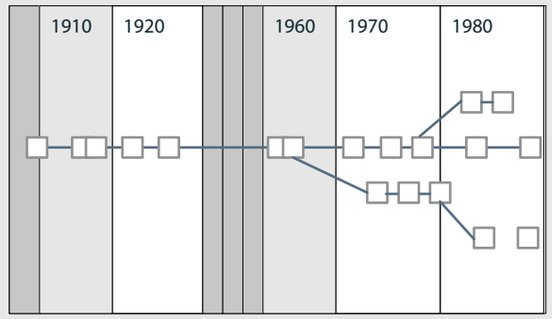
Renzo Piano › **find in MACE**

COMPETENCIES | RATINGS | TAGS | RESOURCE TYPE

MAP



TIMELINE



CONCEPTUAL DESIGN

Project cue	Formal features	Perceptive qualities
strong	alignment	bright
dynamical	balance	reflecting
slender		translucent
flexible	symmetry	

357 results

group by **type** | date | other…

ONLINE COURSES

› Contemporary architecture

› Renzo Piano Biography

› The Paul Klee Museum

› eLearning course: Organic shapes

› Berlin's architecture in the 1990s

IMAGES

WEB PAGES

› City of Bern

› Renzo Piano building workshop

› Paul Klee Museum

› Wikipedia: Renzo Piano

› more

DETAILS

Dimension: 250 x 320
Name: Reichstag.png

User keywords: Reichstag, Berlin,

is used in: Dynamo project "Reichstag Berlin",
Collection "Transparent/Fragile" by user "Alberto"",
eLearning Course "Contemporary Architecture"

location: <show on Map>

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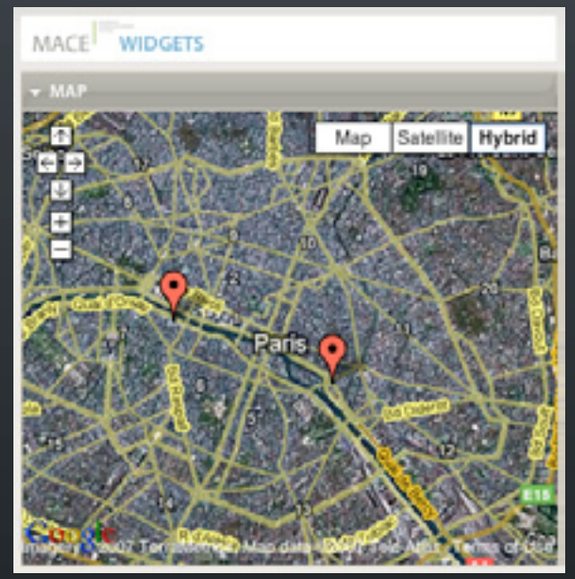
SERVICE ORIENTED ARCHITECTURE

EXAMPLE: MAP WIDGET



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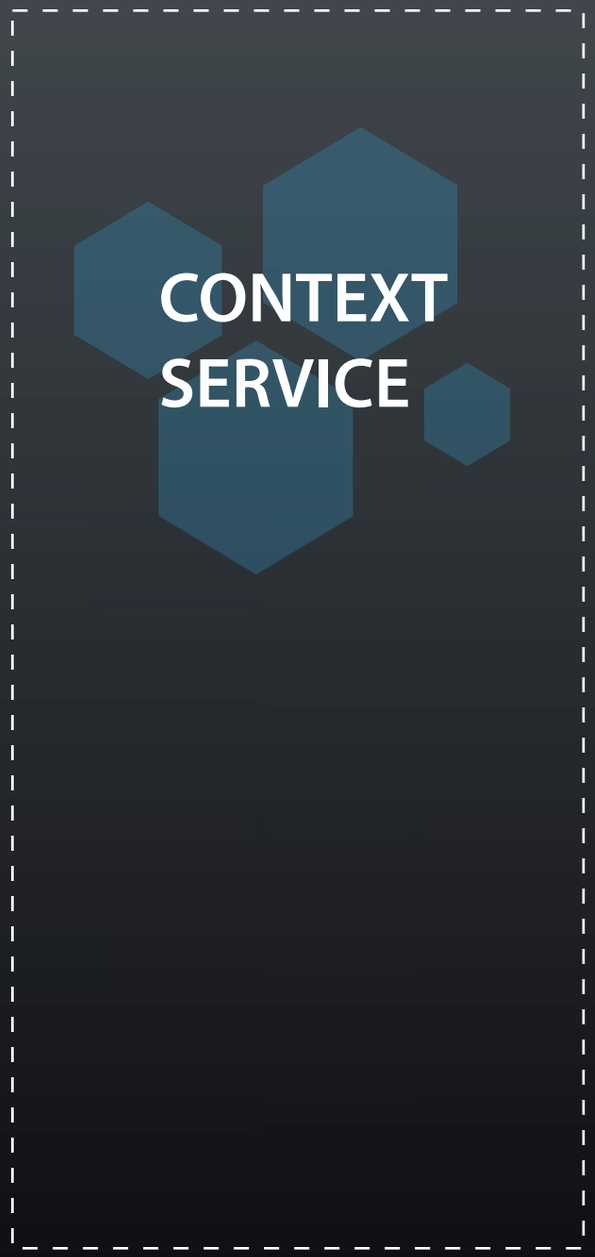
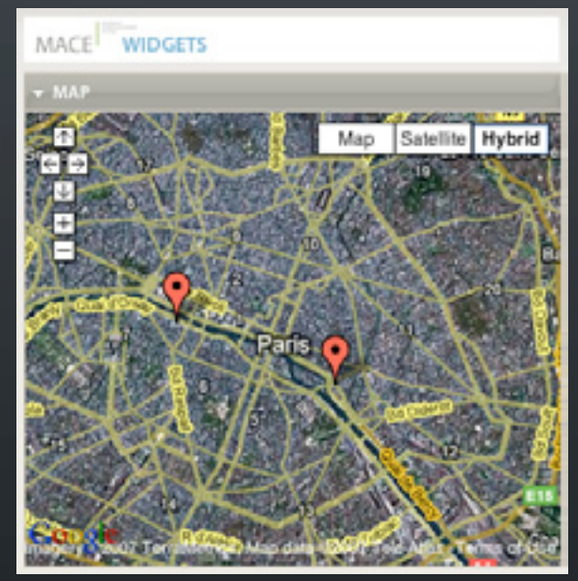
SERVICE ORIENTED ARCHITECTURE

EXAMPLE: MAP WIDGET



LOCATION?



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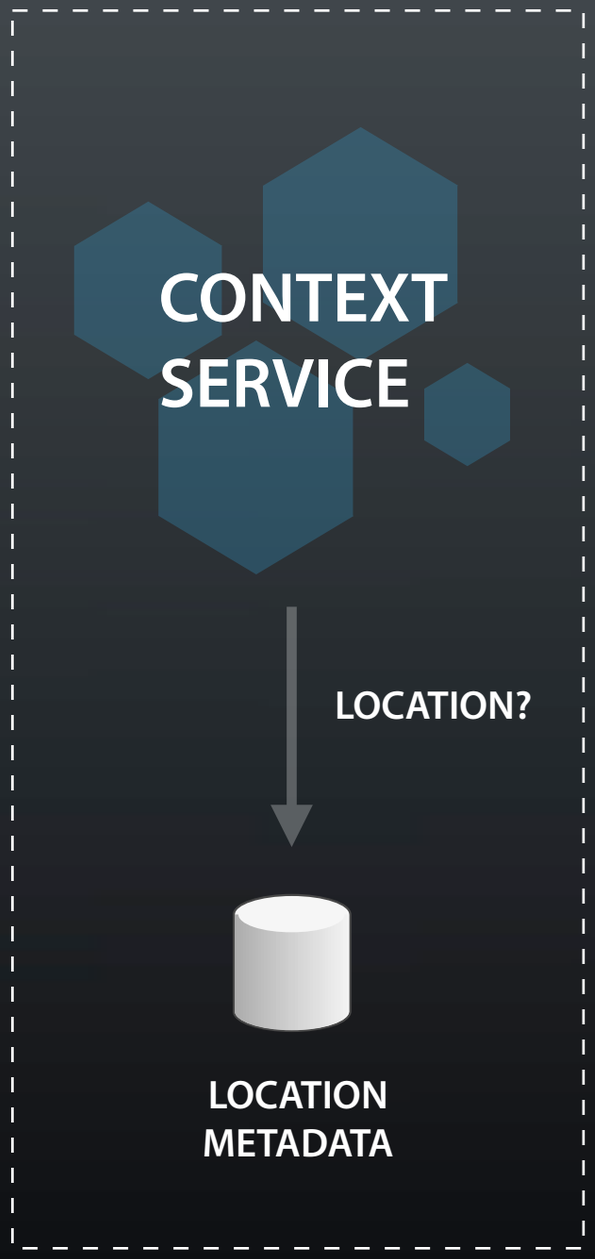
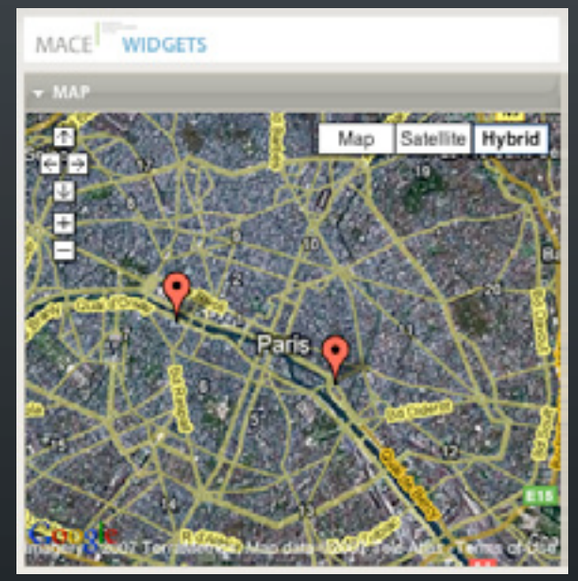
Architectural Contents
in Europe

SERVICE ORIENTED ARCHITECTURE

EXAMPLE: MAP WIDGET





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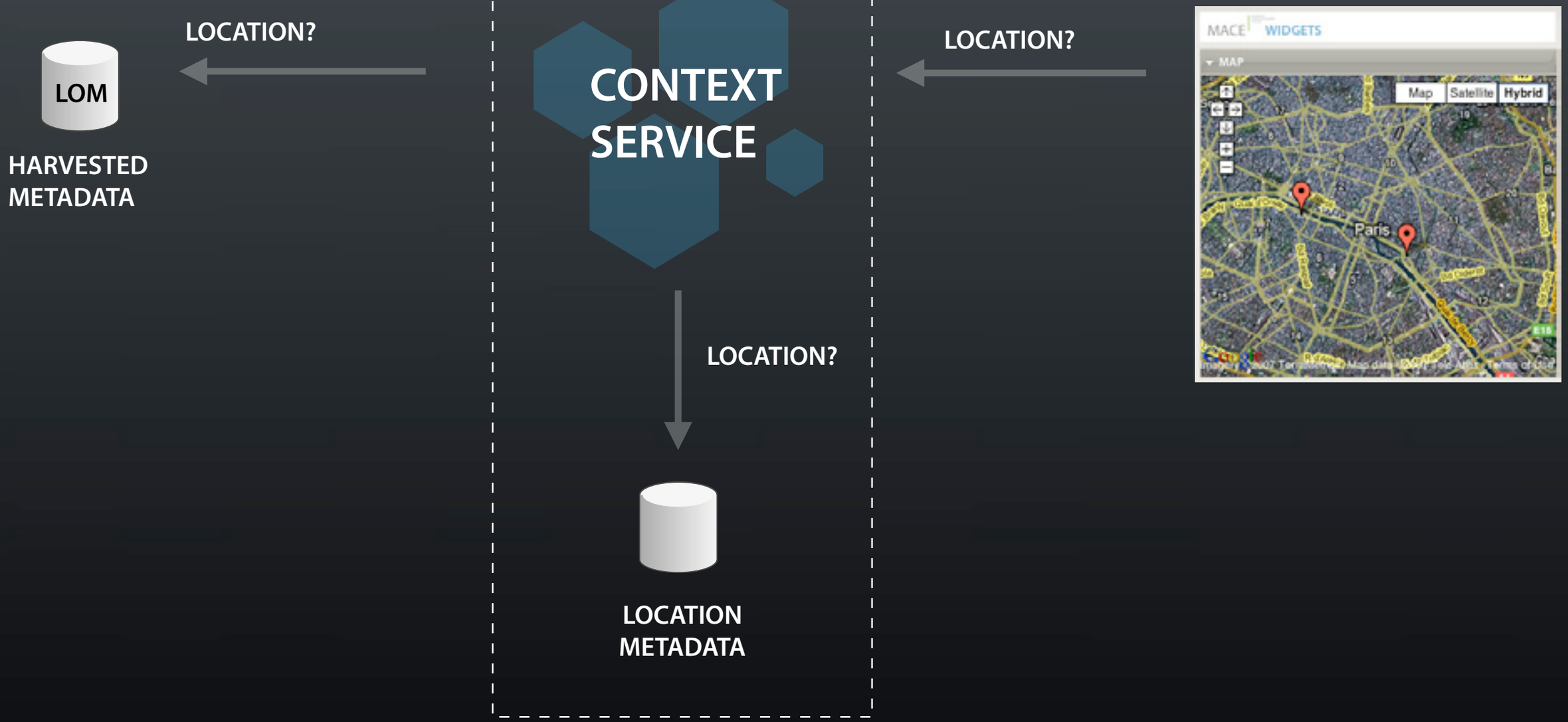
SERVICE ORIENTED ARCHITECTURE

EXAMPLE: MAP WIDGET



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SERVICE ORIENTED ARCHITECTURE

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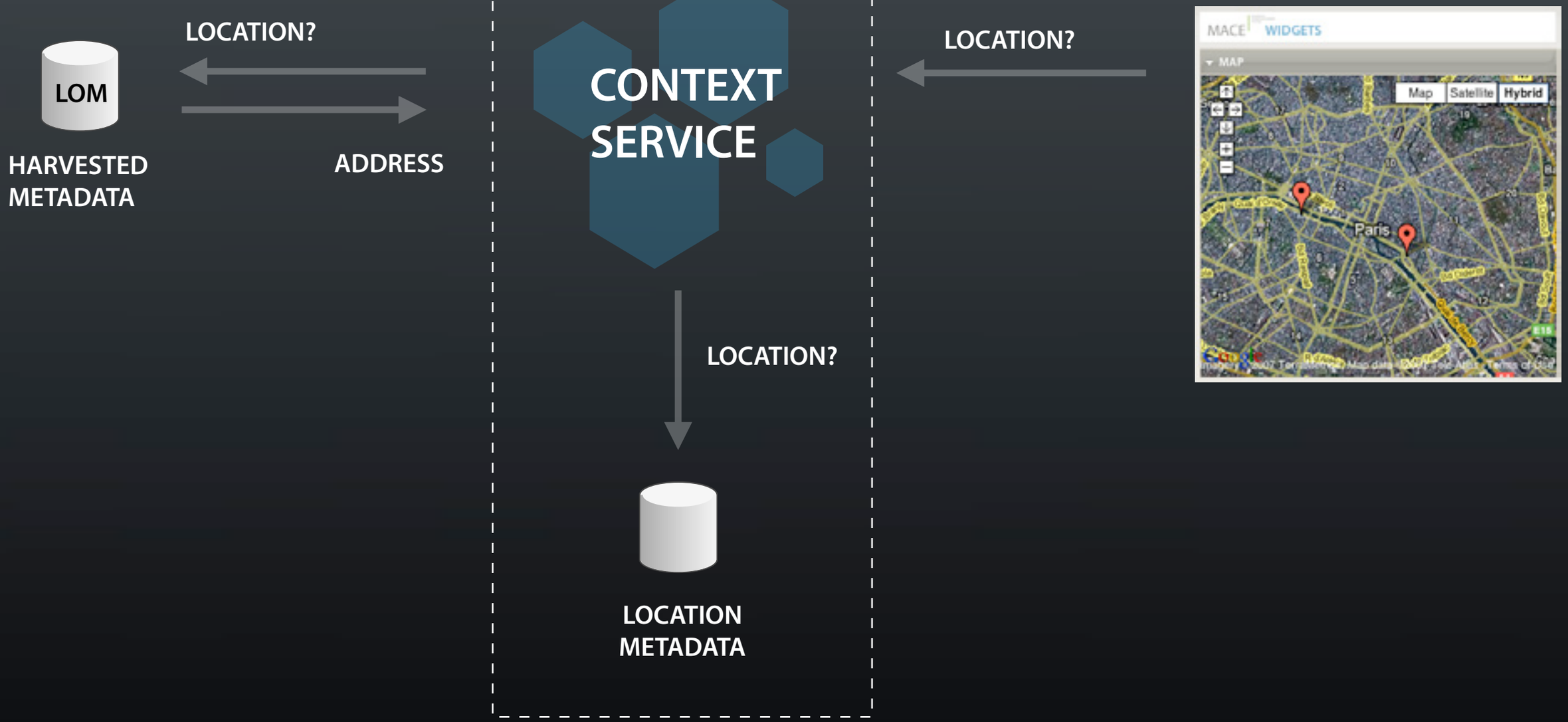

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SERVICE ORIENTED ARCHITECTURE

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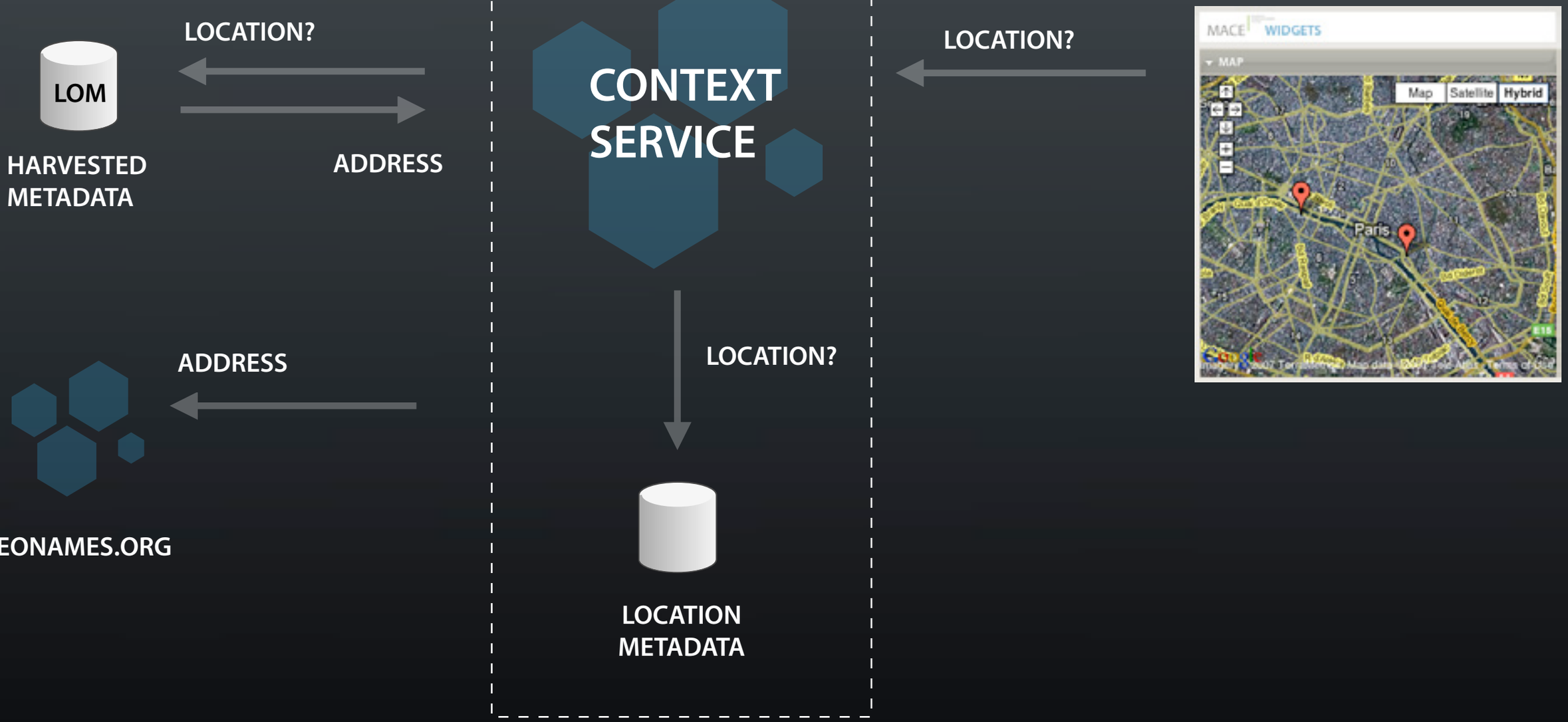

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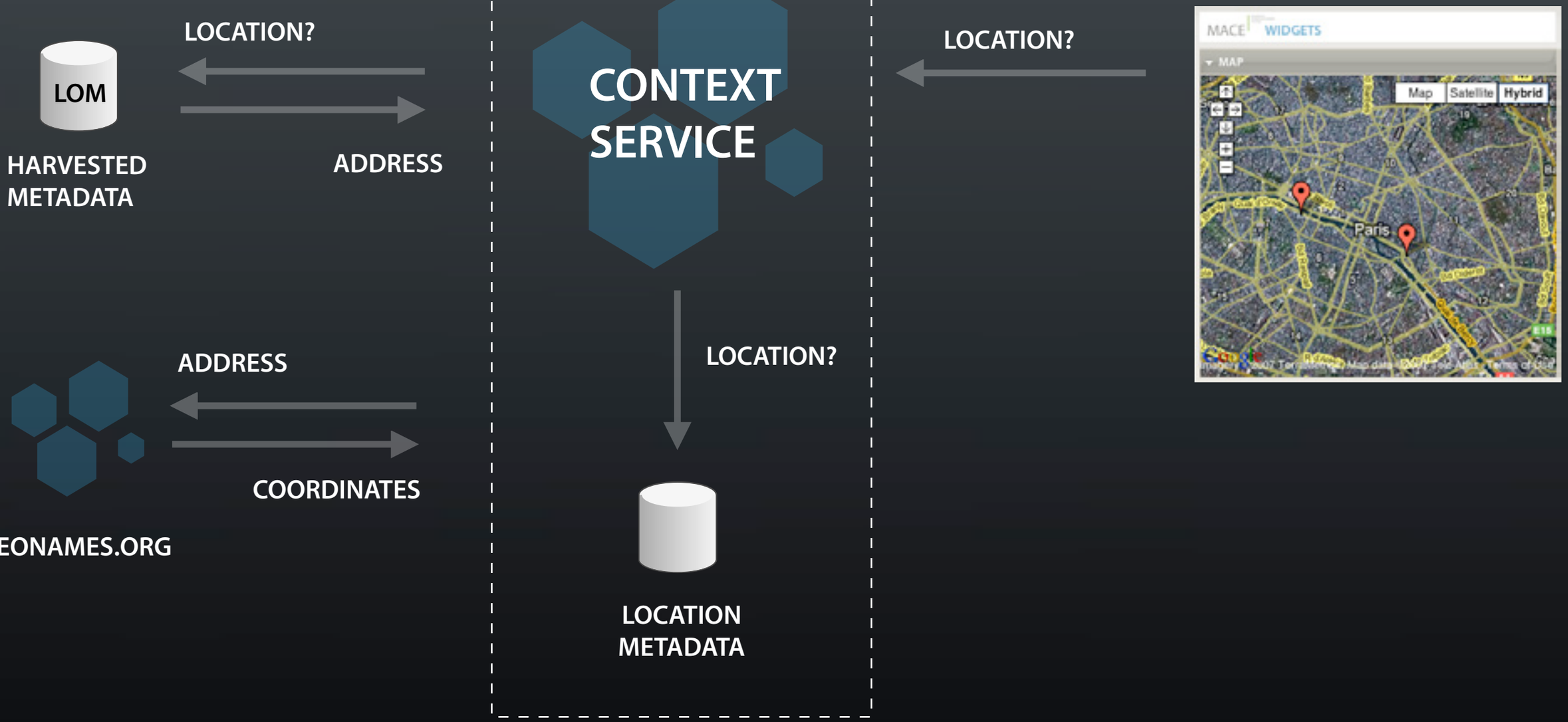
SERVICE ORIENTED ARCHITECTURE

EXAMPLE: MAP WIDGET



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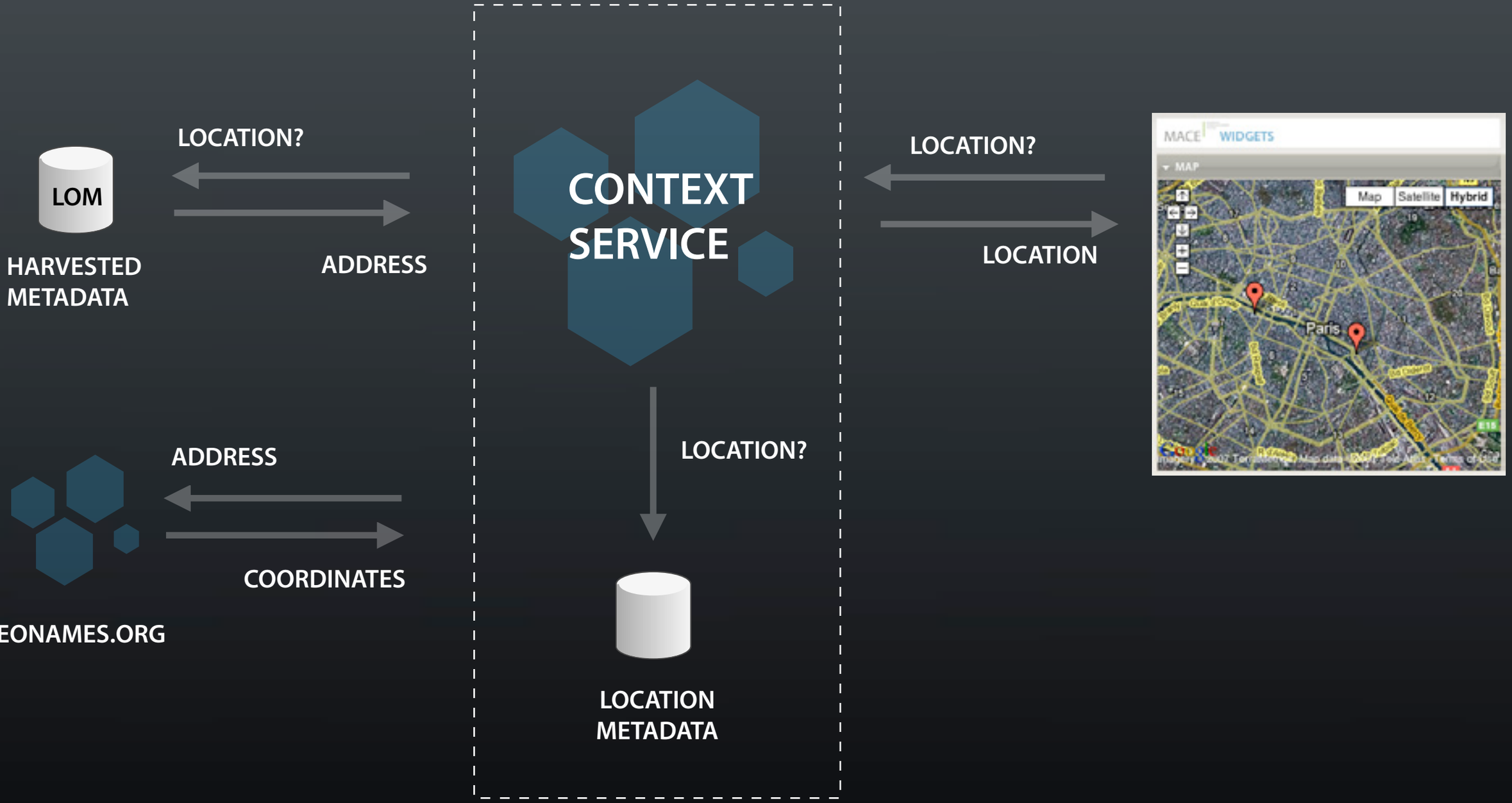
SERVICE ORIENTED ARCHITECTURE

EXAMPLE: MAP WIDGET



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SERVICE ORIENTED ARCHITECTURE

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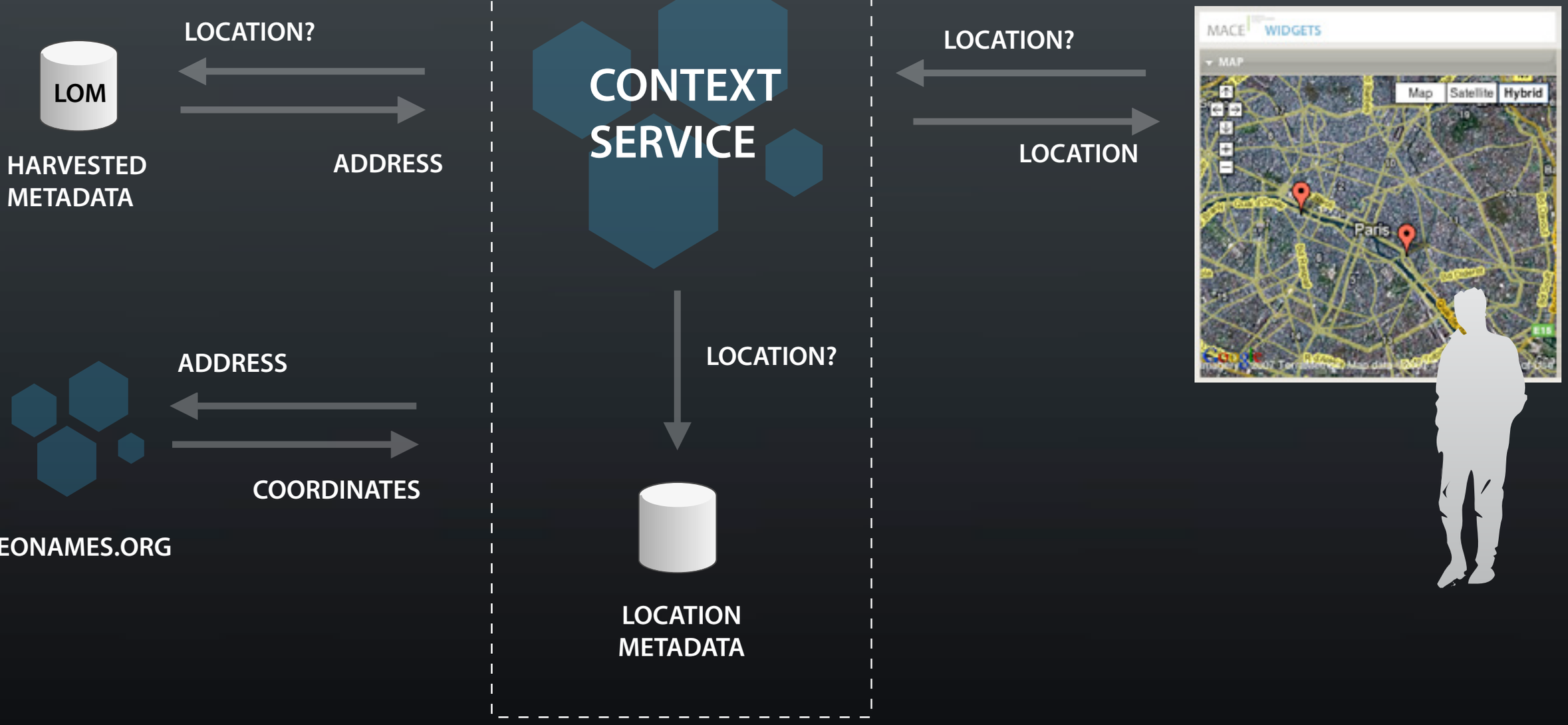

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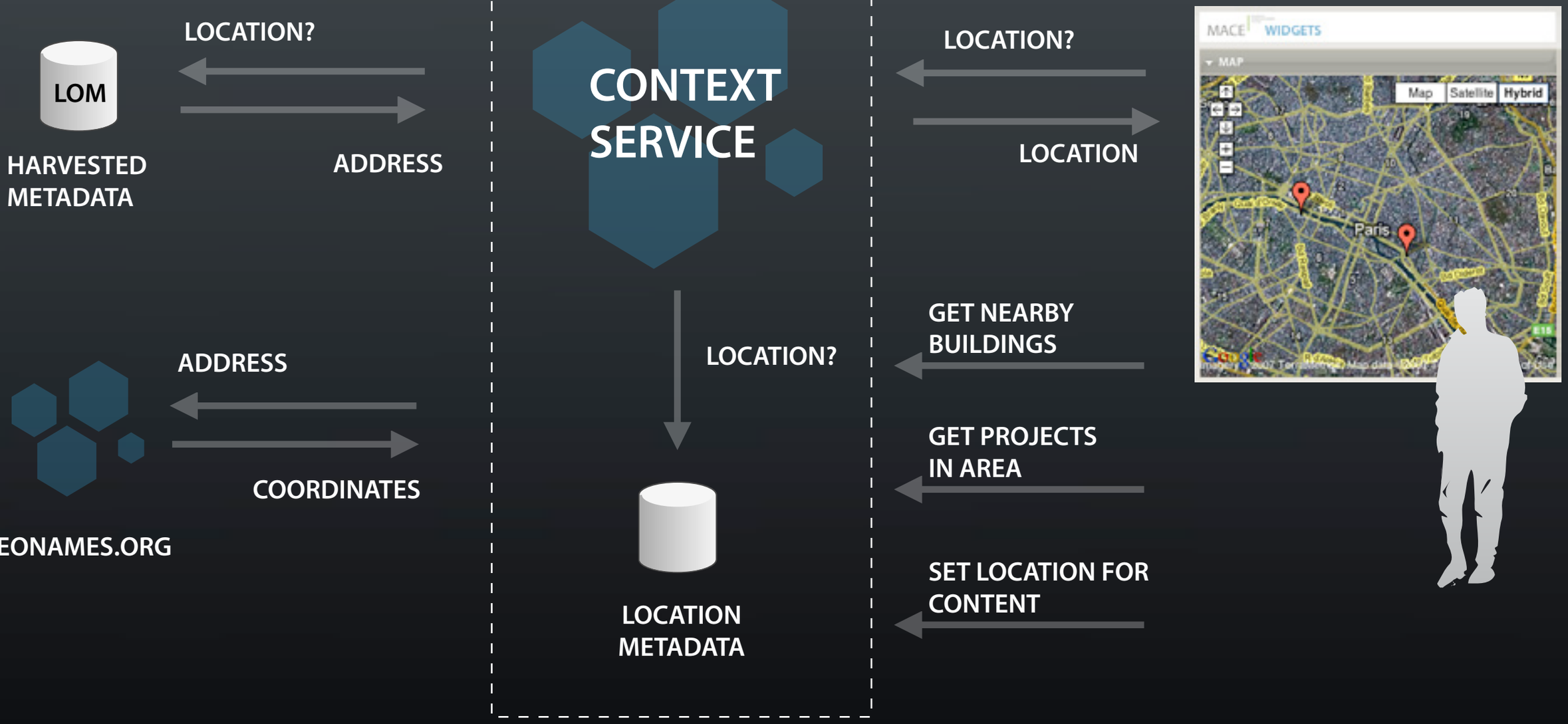
SERVICE ORIENTED ARCHITECTURE

EXAMPLE: MAP WIDGET



MACE SEARCH

FIND

LIST | DETAIL

PREVIOUS NEXT

NO RESULTS, YET

Please enter a search term into the input field above and click on Find.

MACE WIDGETS

Logged in as **mace** LOGOUT

CLASSIFICATION

REFERENCE

No selection

ADD

ASSIGNED VALUES

CONSTRUCTION

activity | construction form | control | machinery equipment | materials | operation | phase | planning | planning actions | restoration profile | safety&health | system profile | technical performance | technological profile

THEORY

architectural and artistic trends | project cue | theoretical concepts

BUILDING_CLASSIFICATION

building elements | building type | formal typology | functional typology

EDUCATIONAL

competence | keywords | language | learning object type | resource type

CONCEPTUAL_DESIGN

formal features | perceptive qualities

STYLE all filter lock

- Modern architecture
- Beaux-Arts architecture
- Organic architecture
- International style
- Mid-century modern
- Postmodernism
- Deconstructivism
- Contemporary architecture
- Bauhaus
- Futurism
- Googie architecture

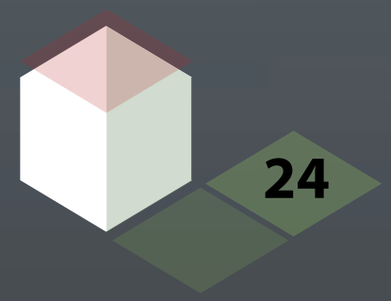
BUILDINGTYPE all filter lock

- Building
- Skyscraper
- House
- Location
- Museum
- Film location
- Institution
- Listed Site
- Protected Site
- Bridge

ARCHITECT all filter lock

- Frank Lloyd Wright
- Philip Johnson
- Frank Gehry
- Santiago Calatrava
- Cass Gilbert
- Le Corbusier
- Pietro Belluschi

MAP

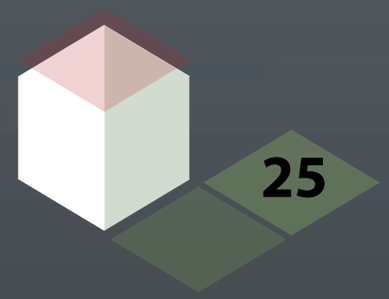


OUTLOOK

- First services and applications

  online end of the year

- Open for content partners!



THANKS! QUESTIONS?

- http://mace-project.eu