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# MASHUPS: BUILDING MULTIMEDIA DOCUMENTS ON THE WEB

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# AGENDA

- Mashing up Web data
  - Key concepts
  - Problem statement and objective
- SUNO: a mashup definition environment
  - Principle: mashing up data in space
  - General architecture and main functions
  - Implementation issues
- Conclusions and perspectives

# SCENARIO

- Data integration in the Web
  - Aggregation
  - Combination
  - Visualization

**Juan Luis Guerra pays homage to Beatles**  
London.- Legendary Dominican singer-songwriter Juan Luis Guerra, famous across the Spanish-speaking world for his merengue and bachata hits, said that his first musical influences had included the Beatles. The 54-year old singer, who gave his first concert ...

via [Dominican Today](#) • 1 day ago

**Beatles' Sgt Pepper's Lonely Hearts Club Band voted best album cover**  
The Beatles' Sgt Pepper's Lonely Hearts Club Band, which features the Fab Four in a park, has made its way to the top spot in a new poll of best album covers. The colourful artwork of the 1967 classic, surrounded by cut-outs of icons and celebrities, saw ...

via [Daily News and Analysis](#) • 1 week ago

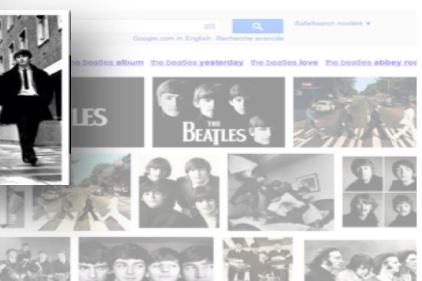


**BBC NEWS BERKSHIRE**  
John Lennon microphone sells for £6,000 at auction

A microphone from John Lennon's home studio, in which he recorded early solo albums and hit song Imagine, has sold for £6,650 at auction.

The former Beatle had the equipment installed at his Georgian manor house estate at Tittenhurst Park, near Ascot, in 1970.

The house became the recording venue for Plastic Ono Band and Imagine albums.



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# MASHUP

- Mashlet
  - **Atomic** and **reusable** container that calls a **data-provider** and
  - **Presents** the retrieved data (e.g. a Web page)
- Data Provider
  - Web scrapping
  - Feeds
  - Web services
- Mashup

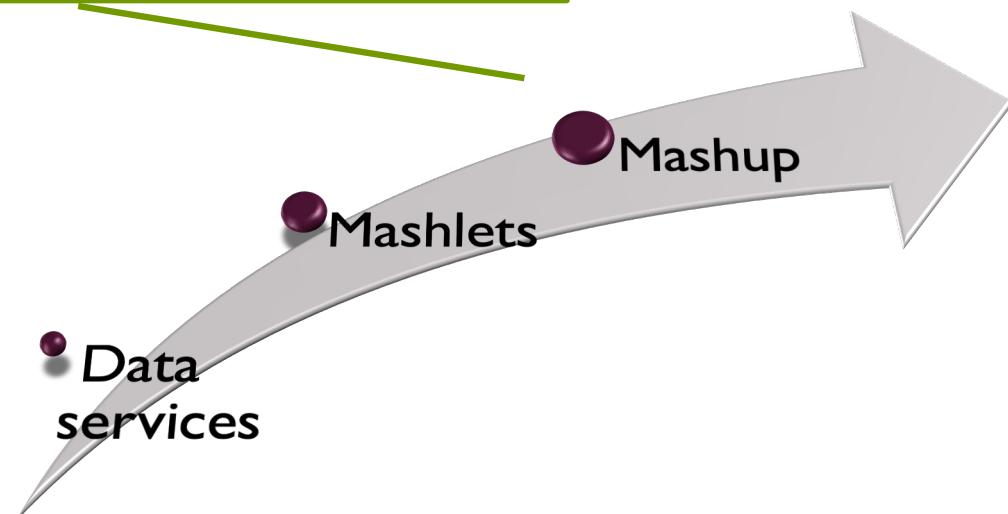
# MASHUP

- Mashlet
- Mashup
  - Application that **aggregate, integrate, manage** and **display** data, which are retrieved from several data-providers
  - Examples
    - Yahoo! Pipes (Data Flow)
    - MS Montage (Spatial data organization)

# MASHING UP DATA

- Mashlet
  - Graphical: widget
  - Functional: web services
- Mashup
  - Composition of mashlets
  - Loosely coupled data integration

- Databases
- Web services
- Web Pages
- Local Files

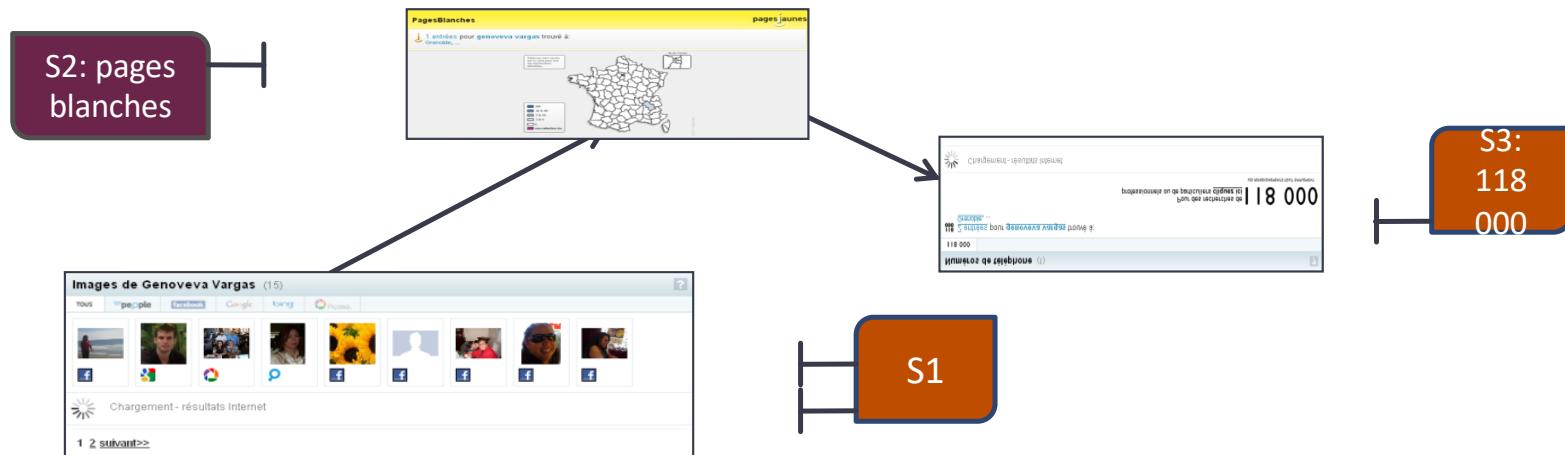


## EXISTING WORKS

CRITERION	WSO2 MASHUP SERVER	YAHOO! PIPES	INTEL MASHMAKER	PRESTO
Type	Platform	Platform	Platform	Language/Platform
Implementation	JavaScript	Drag-And-Drop	Drag-And-Drop	D&D XML/ support for adding scripts
Edition tool	Navigator	Navigator	Navigator	Eclipse/ Navigator
Dashboard	WSO2 gadget server	Yes	Yes	Yes
Catalogue	No	Yes	Yes	No

## APPROACH

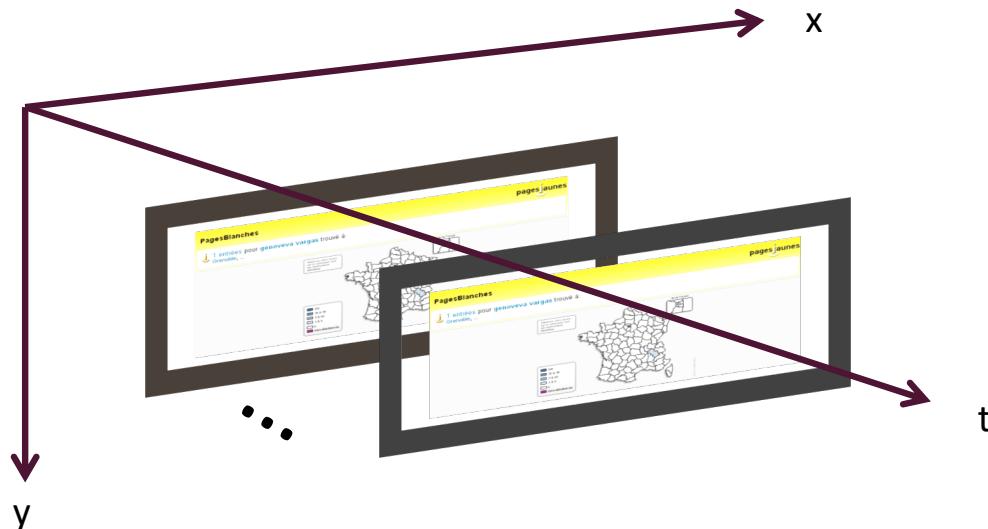
*Digital profile of Genoveva Vargas : address, google, bing, flicker, facebook ...*



- **Mashlet:** basic unit for retrieving data from a data service (service call) and visualizing results
  - Data service identified by an URI and exports an API with methods for retrieving data
  - Visualization defines a way how to display data in a 2D space (html page) and in time
- **Mashup:** a set of mashlets associated by spatial and temporal relationships

## MASHLET

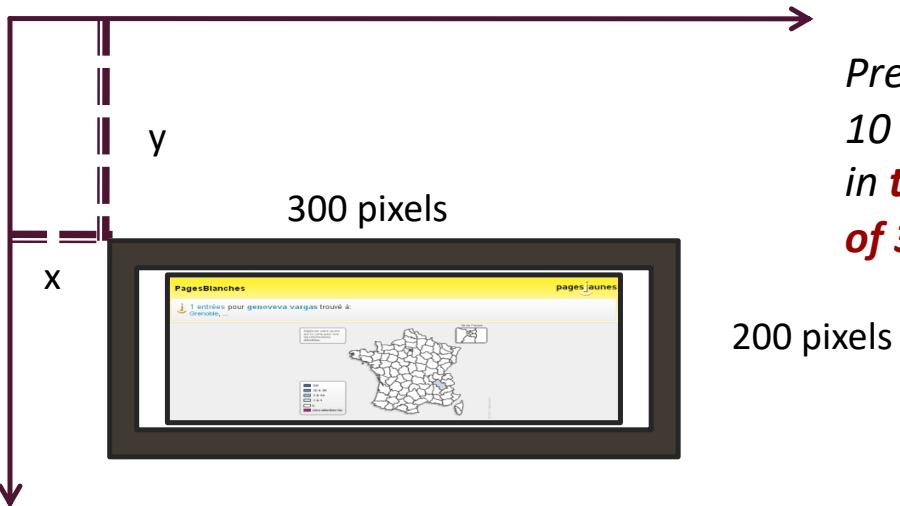
*Digital profile of Genoveva Vargas : address, google, bing, flicker, facebook ...*



- Visualization: associates a size, a position, a start time, and a duration to the data retrieved from a service
- Management: frequency in which data have to be retrieved by calling the service

## MASHLET

*Digital profile of Genoveva Vargas : address, google, bing, flicker, facebook ...*

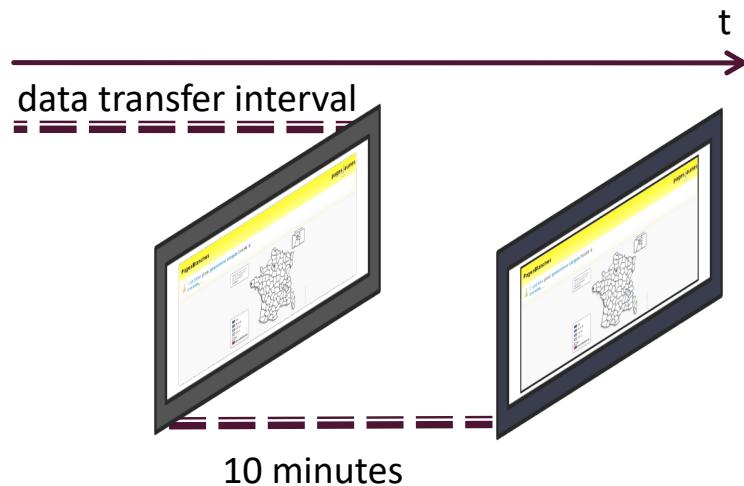


*Present Genoveva's current addresses during 10 minutes once data have been retrieved in **the upper part of the space in a rectangle of 300 x 200 pixels***

- Visualization: associates **a size, a position**, a start time, and a duration to the data retrieved from a service
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## MASHLET

*Digital profile of Genoveva Vargas : address, google, bing, flicker, facebook ...*



*Present Genoveva's current addresses during  
10 minutes once data have been retrieved  
in the upper part of the space In a rectangle  
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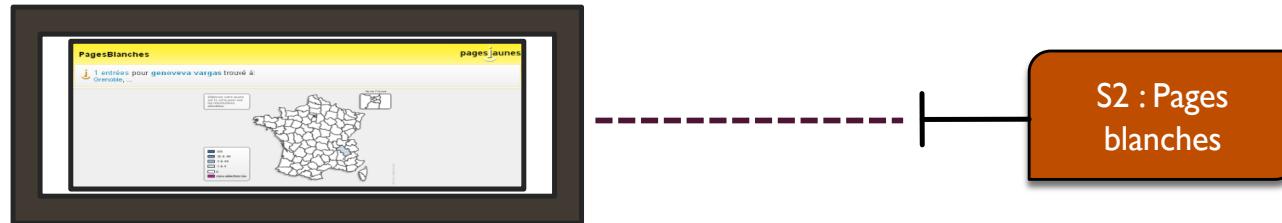
- Visualization: associates a size, a position, **a start time, and a duration** to the data retrieved from a service
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## MASHLET

*Digital profile of Genoveva Vargas : address, google, bing, flicker, facebook ...*

*But Genoveva moves a lot and changes addresses frequently ...*

*... so data have to be refreshed*



*Get Genoveva's address every week*

- Visualization: associates a size, a position, a start time, and a duration to the data retrieved from a service
- Management: **frequency in which data have to be retrieved by calling the service**

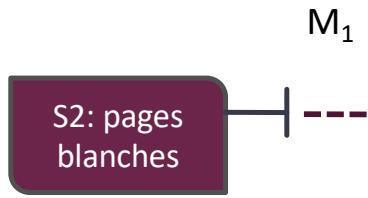
# MASHUP

*Digital profile of Genoveva Vargas : address, google, bing, flicker, facebook ...*

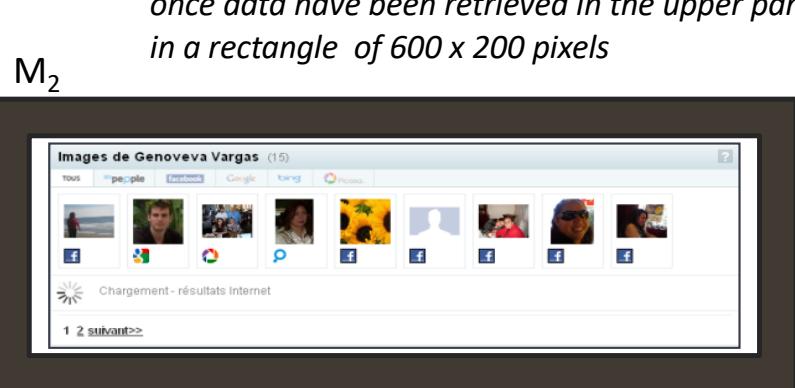
The screenshot shows a web browser window with multiple tabs open. The main content area displays search results for 'genoveva vargas'. At the top, there's a yellow banner from 'PagesBlanches' with the text '1 entrée pour genoveva vargas trouvé à Grenoble, ...'. Below this, there's a map of France with a callout to Grenoble. The main search results show 15 images of a person named Genoveva Vargas, followed by a section for 'Numéros de téléphone' (1 result) showing a phone number 118 000. A message below the phone number says '2 entrées pour genoveva vargas trouvé à Grenoble, ...'. At the bottom of the search results, there's a promotional banner for 'Pour des recherches de professionnels ou de particuliers cliquez ici | 118 000 LES RENSEIGNEMENTS TOUT SIMPLEMENT'. The browser interface includes a toolbar at the top with various icons and a menu bar.

Inspired in <http://www.123people.fr>

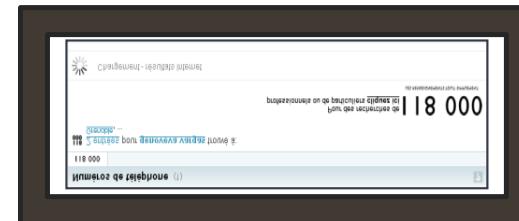
## MASHUP ELEMENTS



*Present Genoveva's current addresses during 10 minutes once data have been retrieved in the upper part of the space In a rectangle of 300 x 200 pixels*

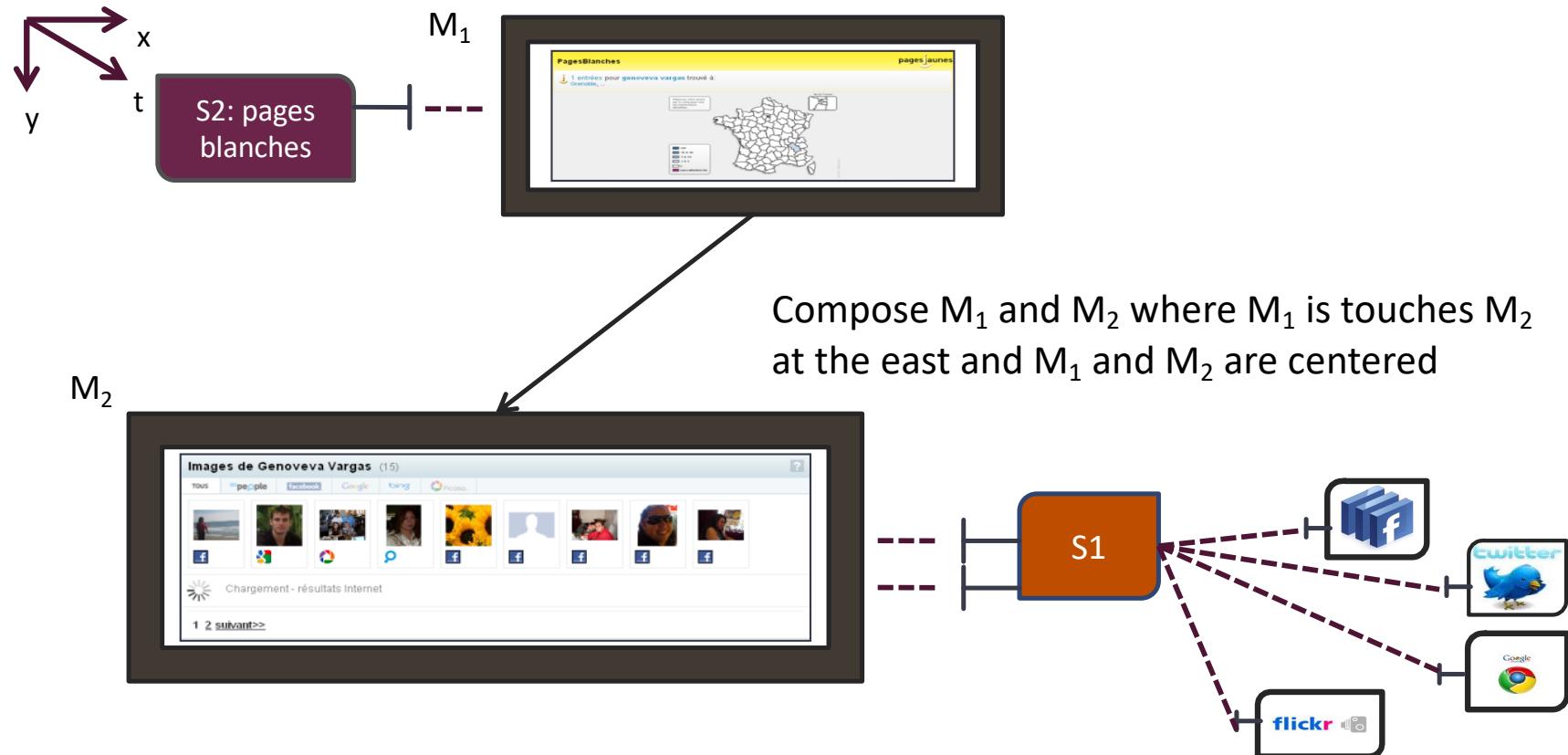


M<sub>3</sub>

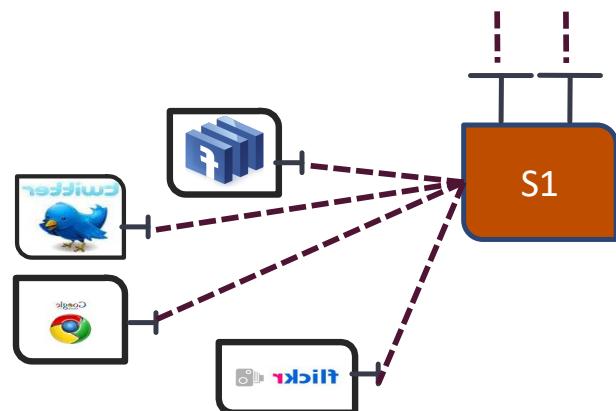
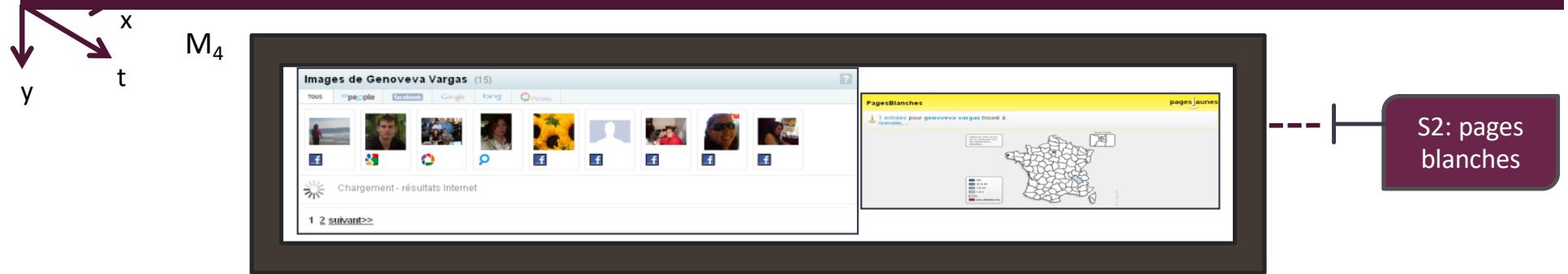


S3:  
118  
000

# MASHUP

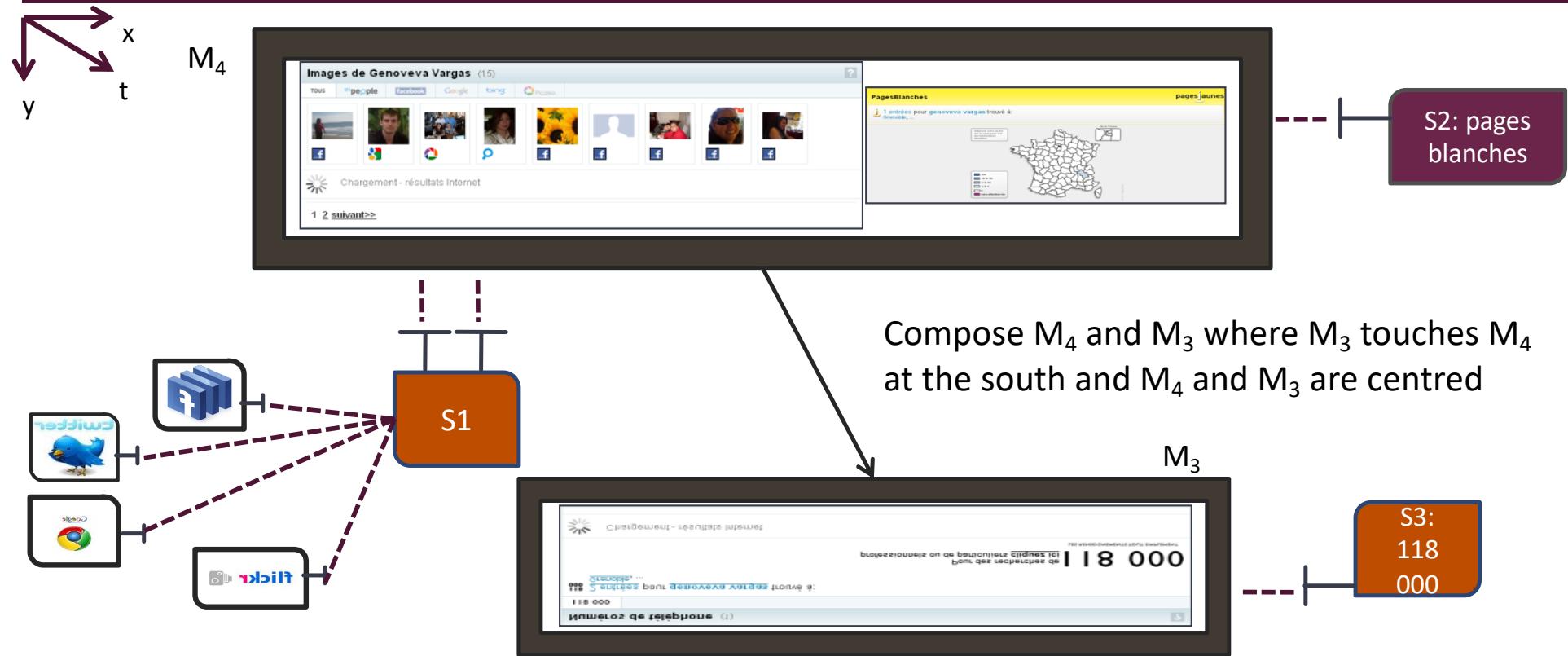


## MASHUP

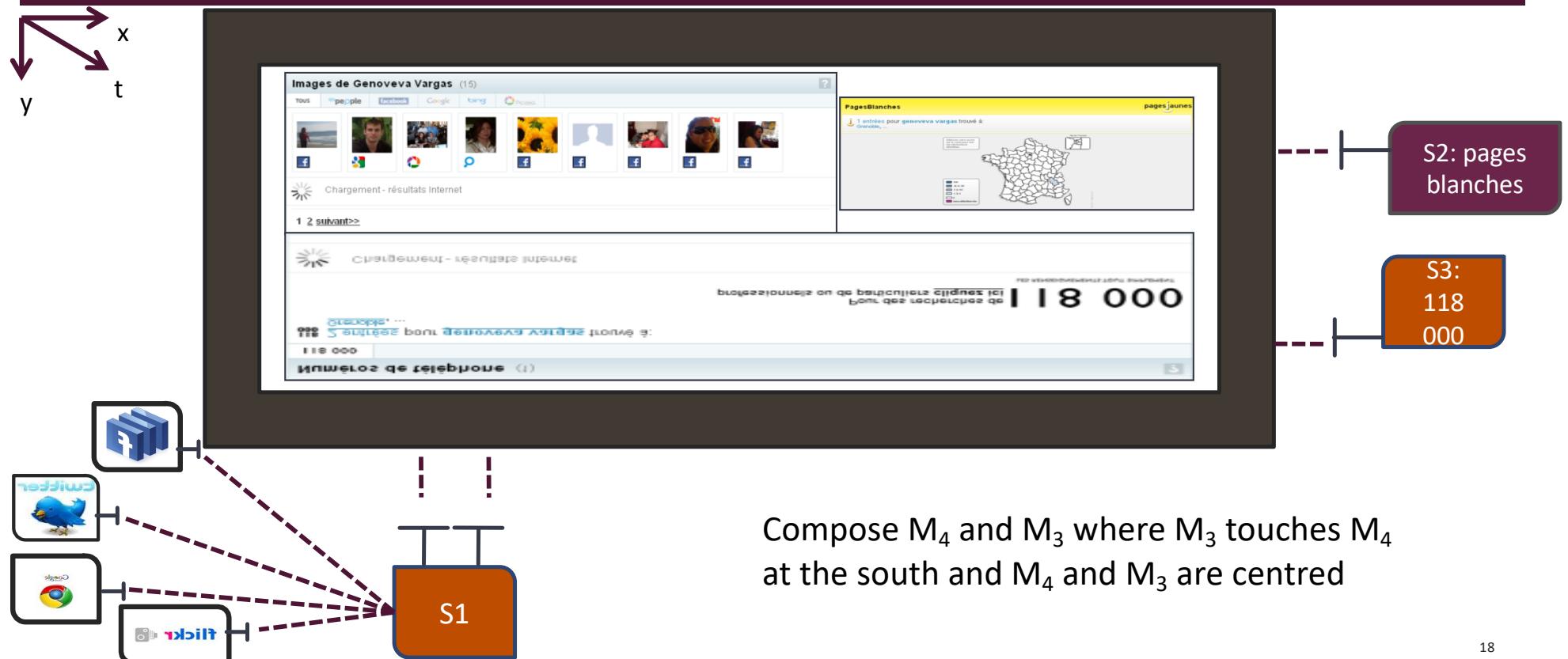


Compose  $M_1$  and  $M_2$  where  $M_1$  is touches  $M_2$  at the east and  $M_1$  and  $M_2$  are centered

# MASHUP



# MASHUP





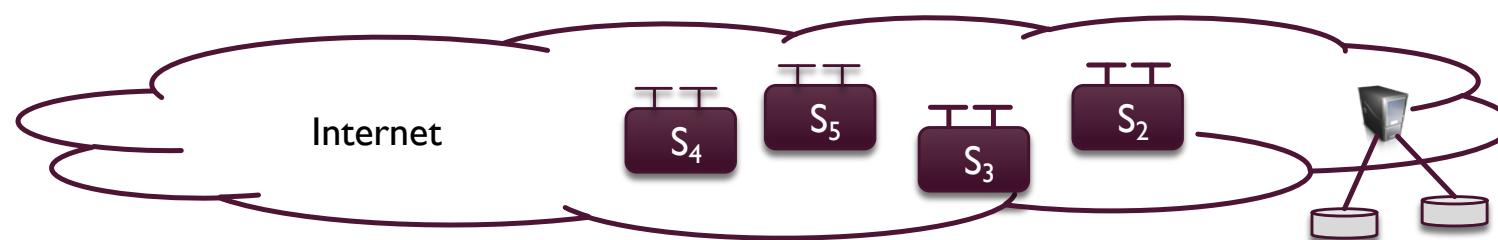
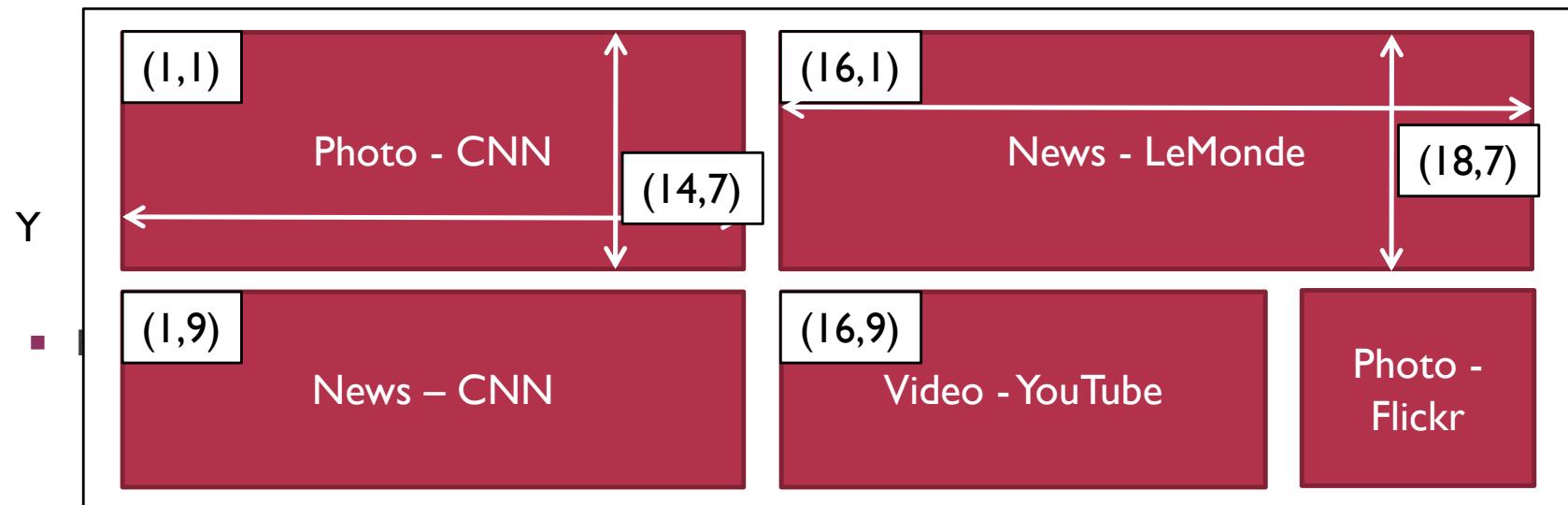
[Genoveva.Vargas@imag.fr](mailto:Genoveva.Vargas@imag.fr)

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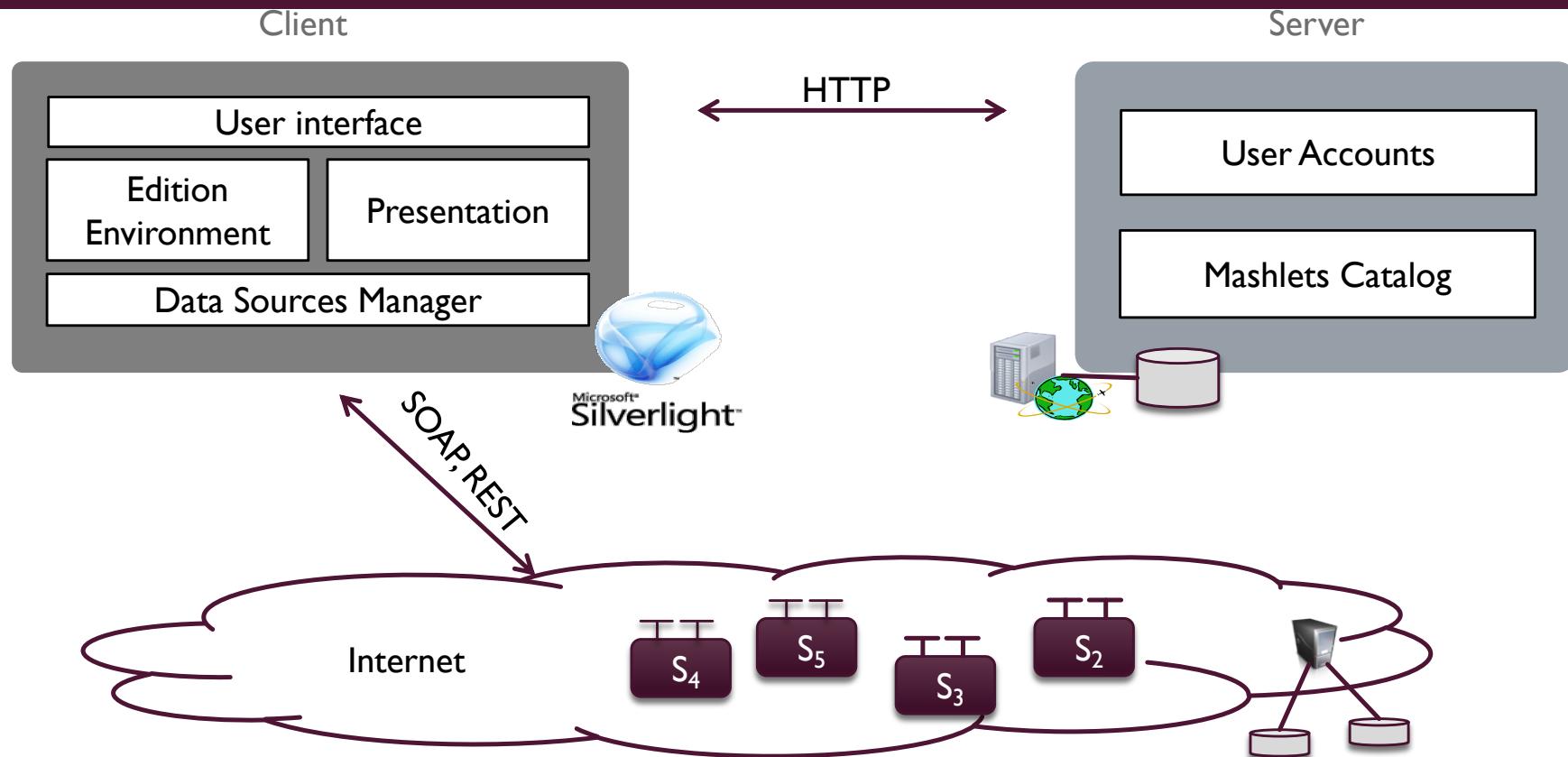
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## MASHING UP DATA IN A 2D SPACE PRINCIPLE



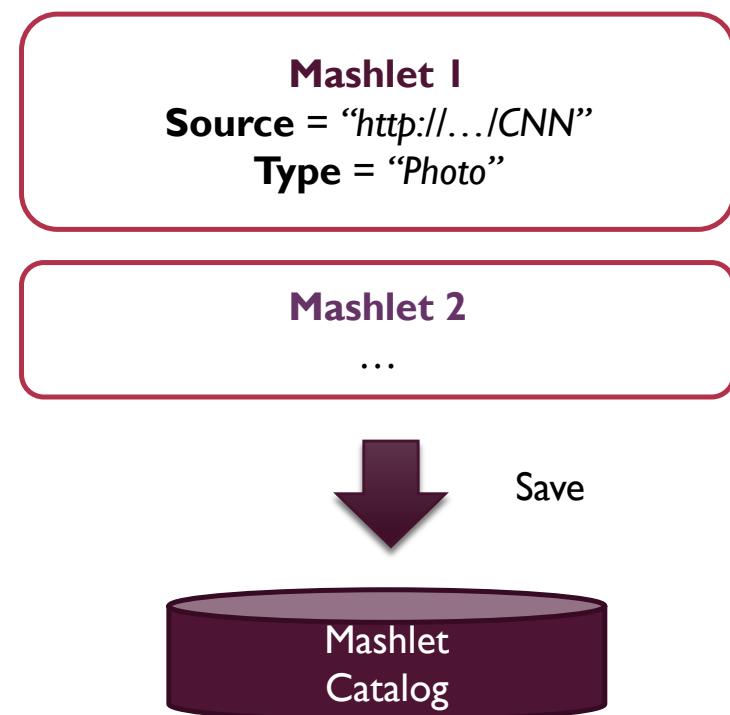
# SUNO ARCHITECTURE



# SUNO FUNCTIONS

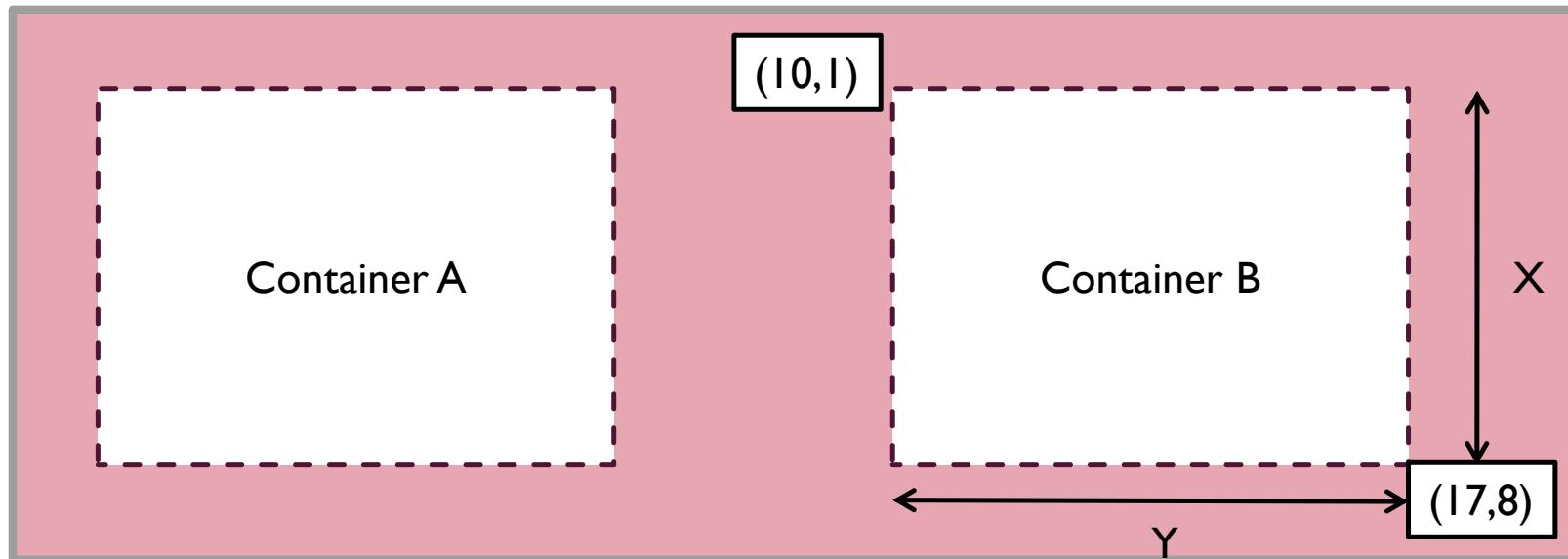
## MASHLET DEFINITION

- Procedure
- **Step 1** Specify the sources
- **Step 2** Specify the data format
- **Step 3** Save the mashlet



# SUNO FUNCTIONS

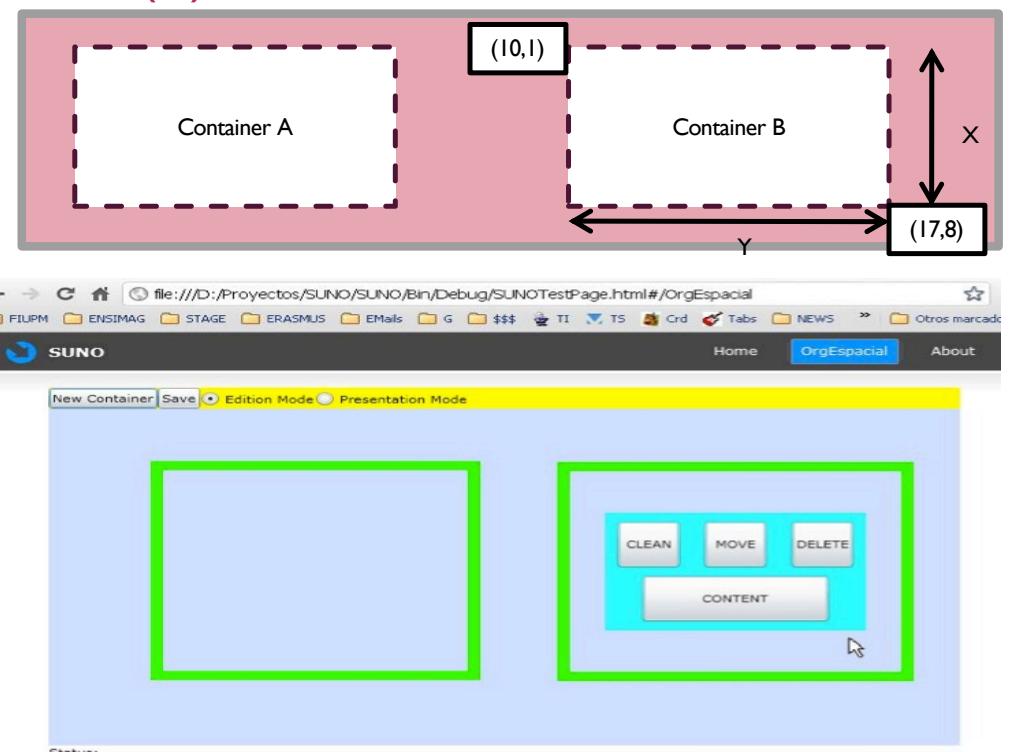
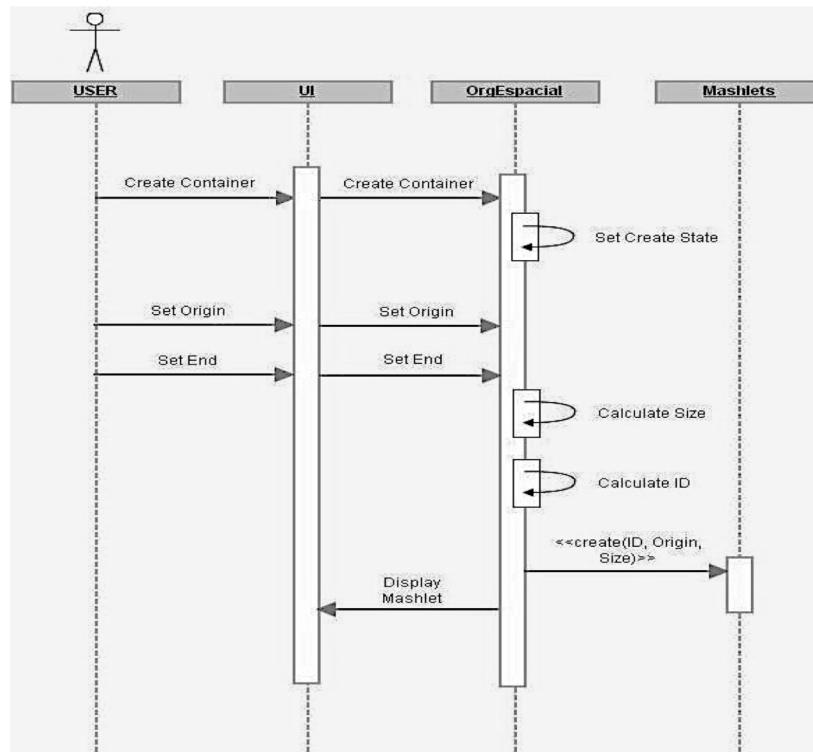
## MASHUP 2D SPACE ORGANIZATION (I)



“My First Mashup”

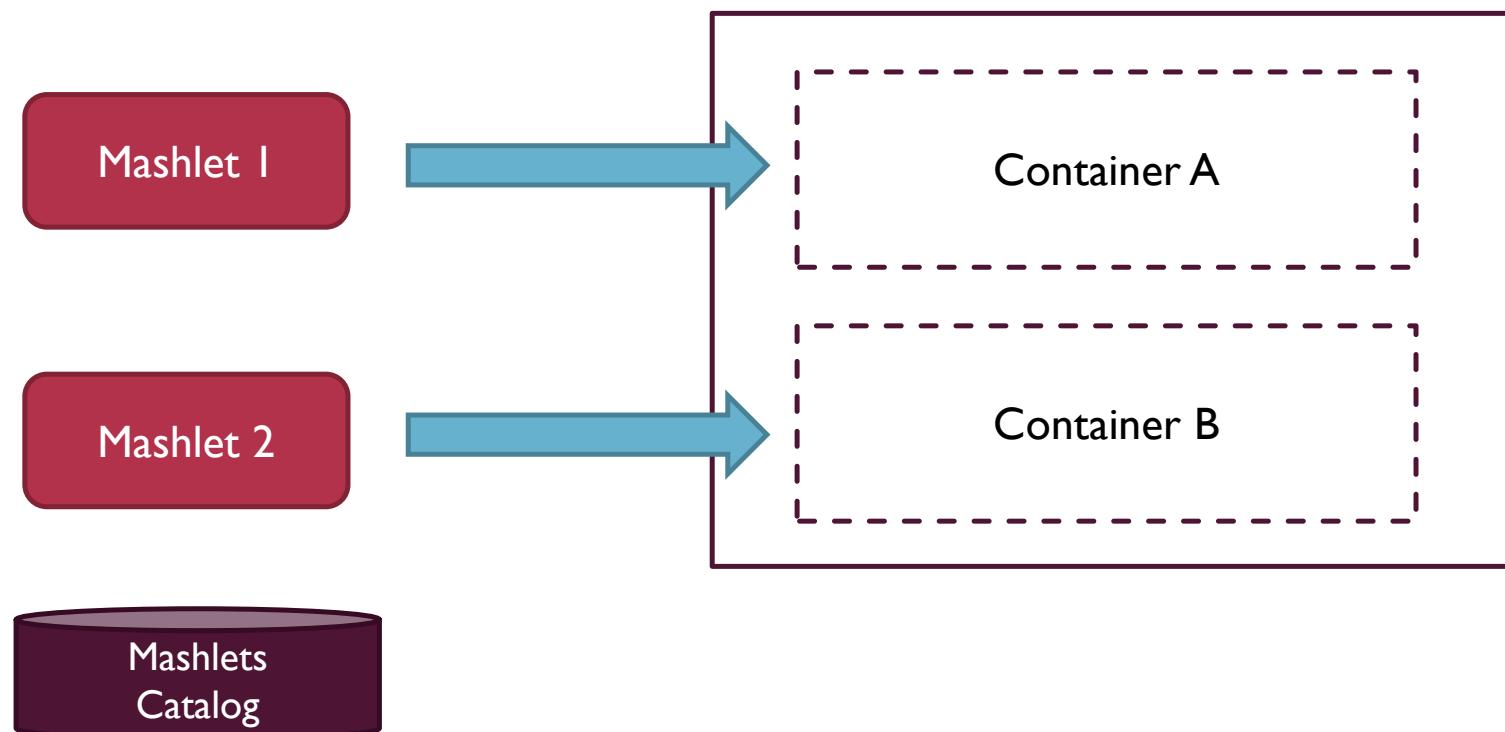
# SUNO FUNCTIONS

## MASHUP 2D SPACE ORGANIZATION (II)



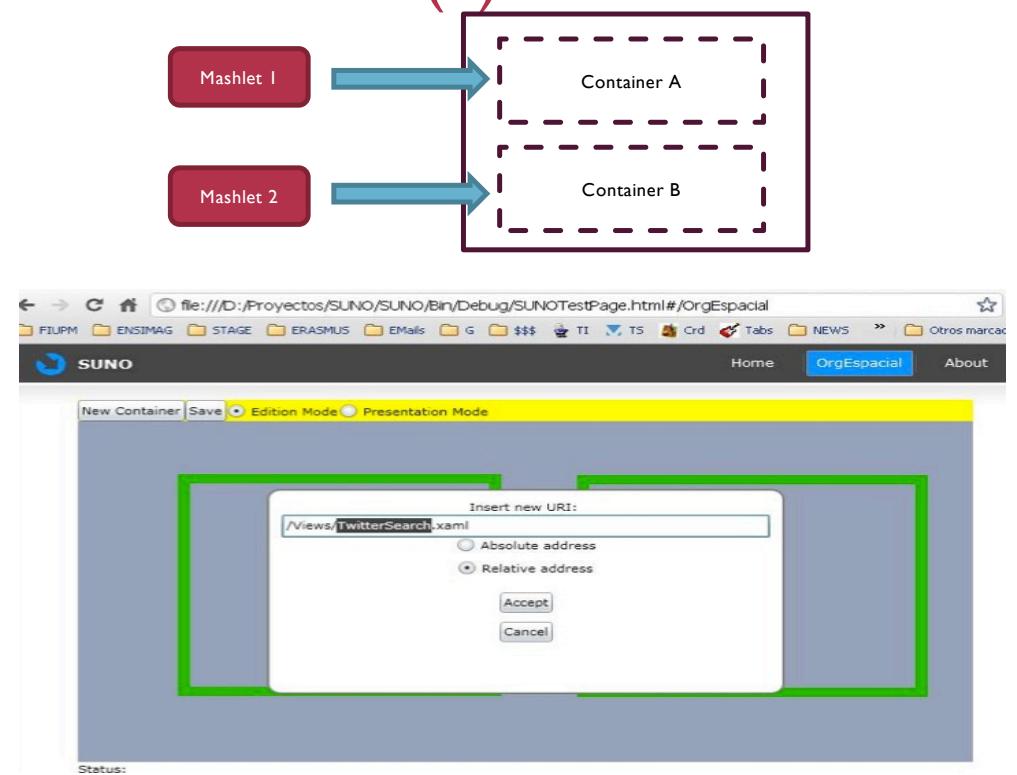
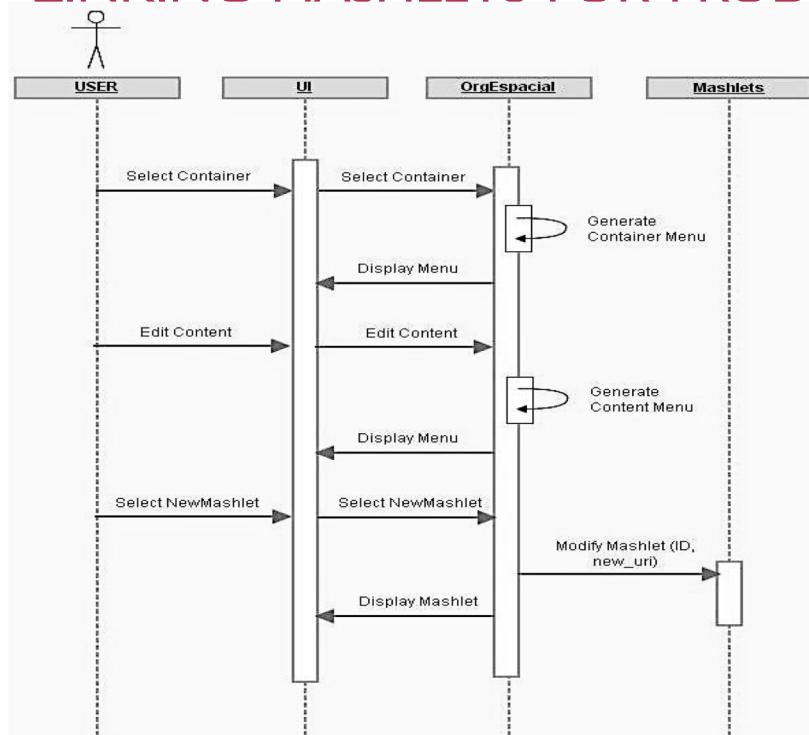
# SUNO FUNCTIONS

## LINKING MASHLETS FOR PRODUCING A MASHUP (I)



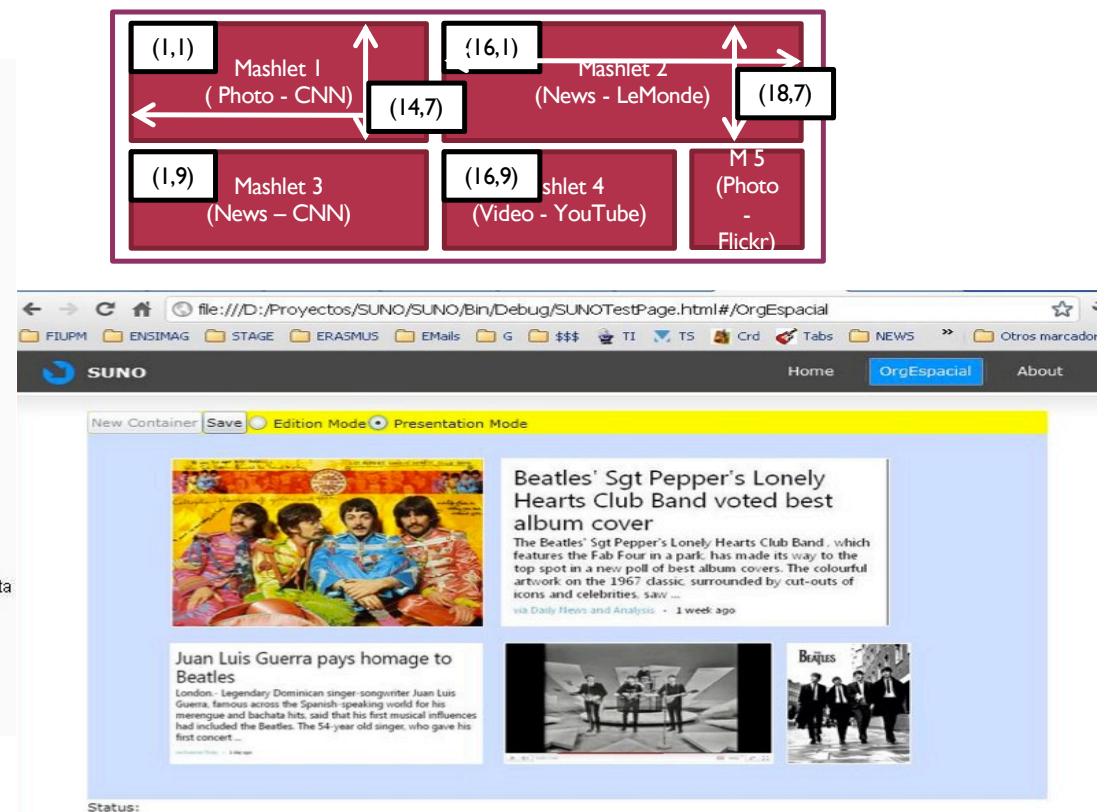
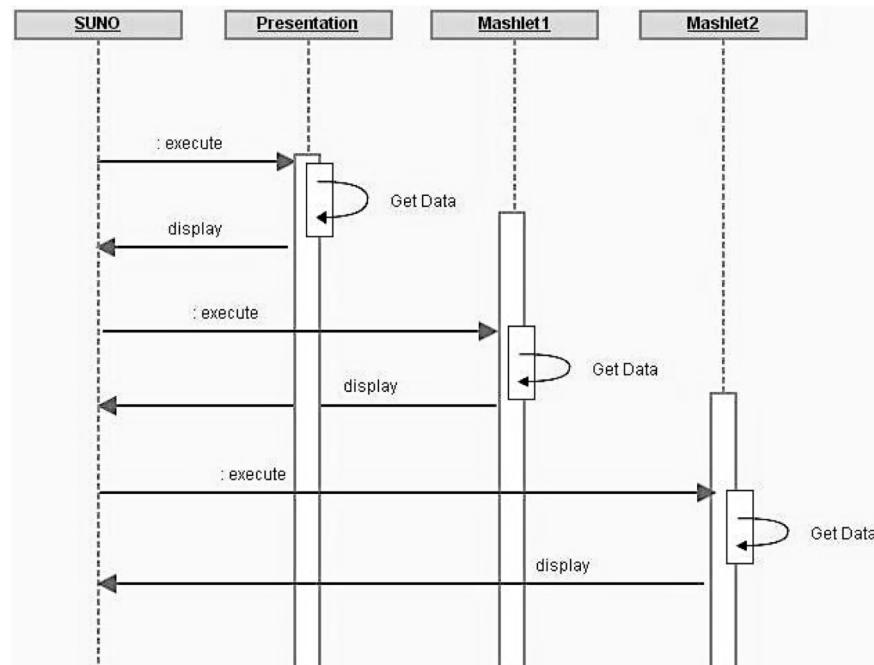
# SUNO FUNCTIONS

## LINKING MASHLETS FOR PRODUCING A MASHUP (II)



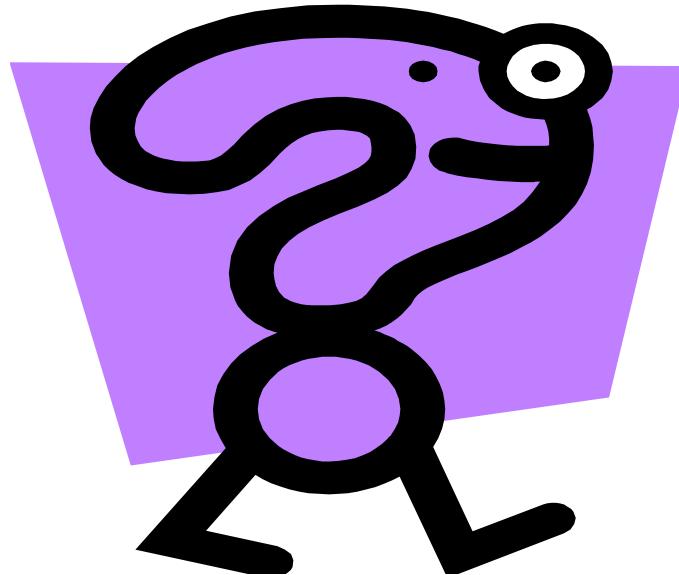
# SUNO FUNCTIONS

## MASHUP EXECUTION



## IMPLEMENTATION ISSUES

- Development platform
  - .NET 4 Platform
  - Silverlight
- Tools and Technologies
  - XAML
  - C#
  - Visual Studio 2010
- Communication Styles
  - RESTful
  - SOAP
- Data Format
  - JSON
  - XML



# Thanks