

# The Visual Factory

On demand visual recognition  
for Trans-media applications

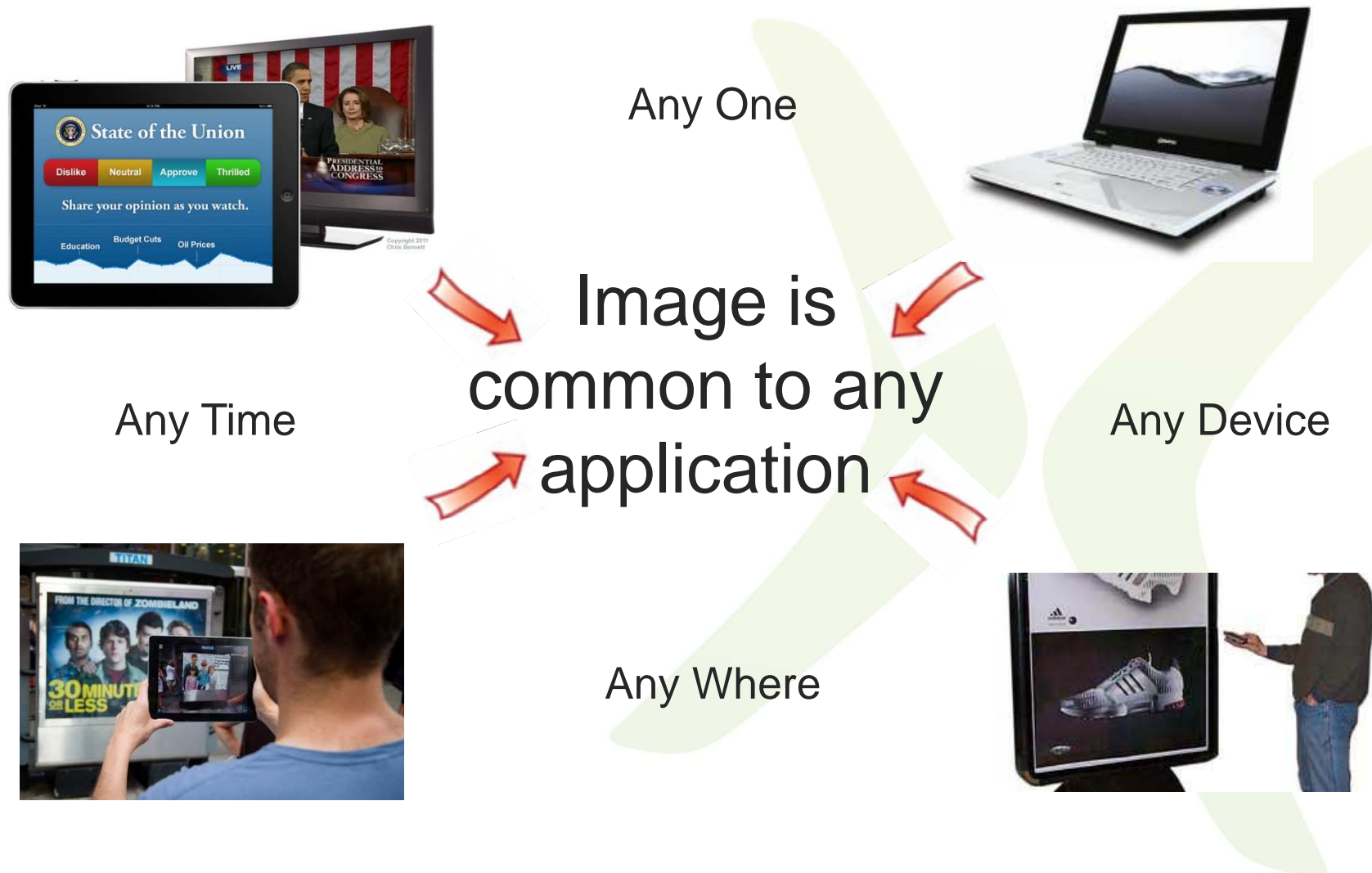
Addressing the big data challenges  
Raised by content image based retrieval

Pascal Ruby

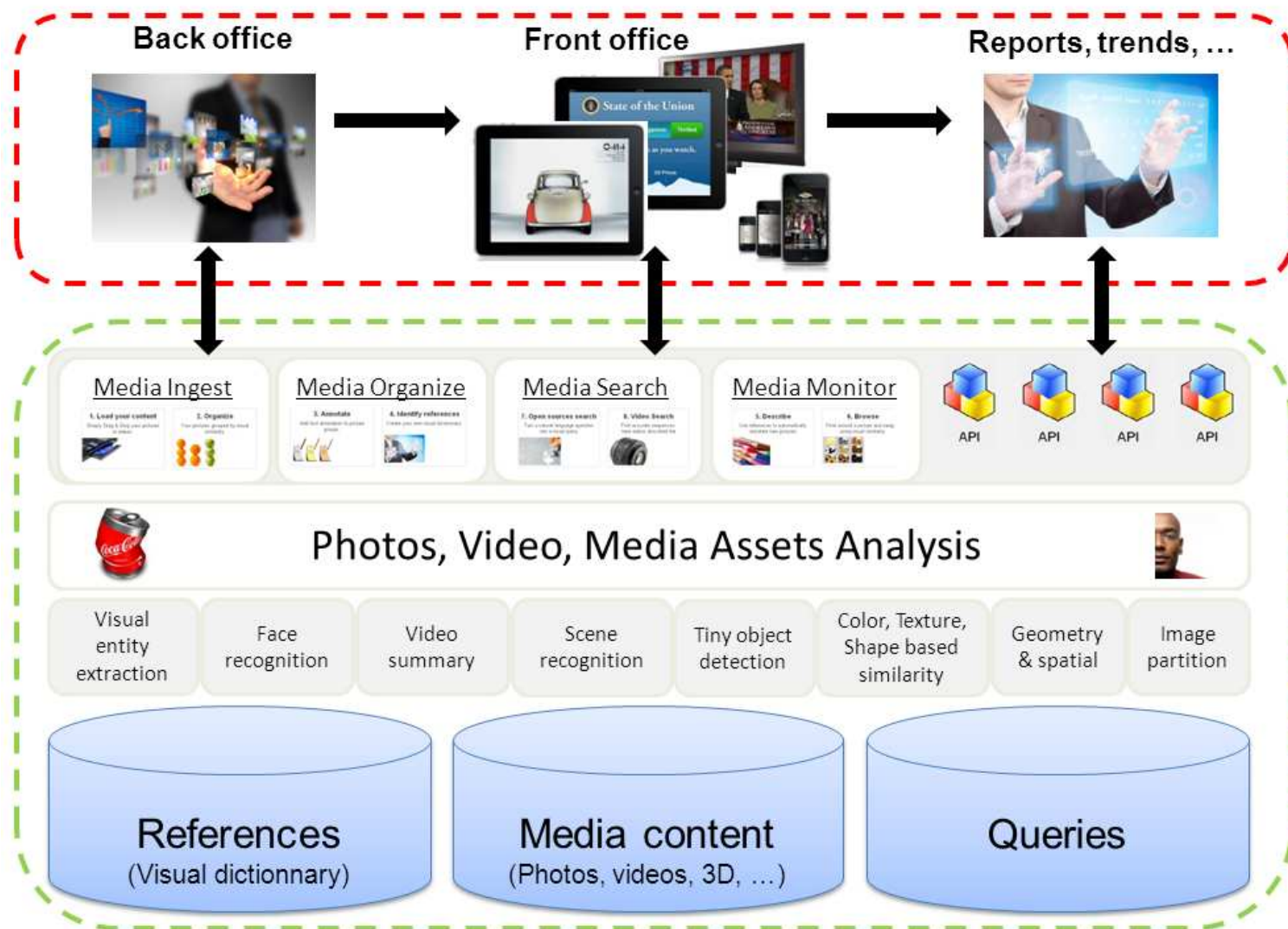
[pascal.ruby@xedix.eu](mailto:pascal.ruby@xedix.eu)

+33 6 59 86 64 91

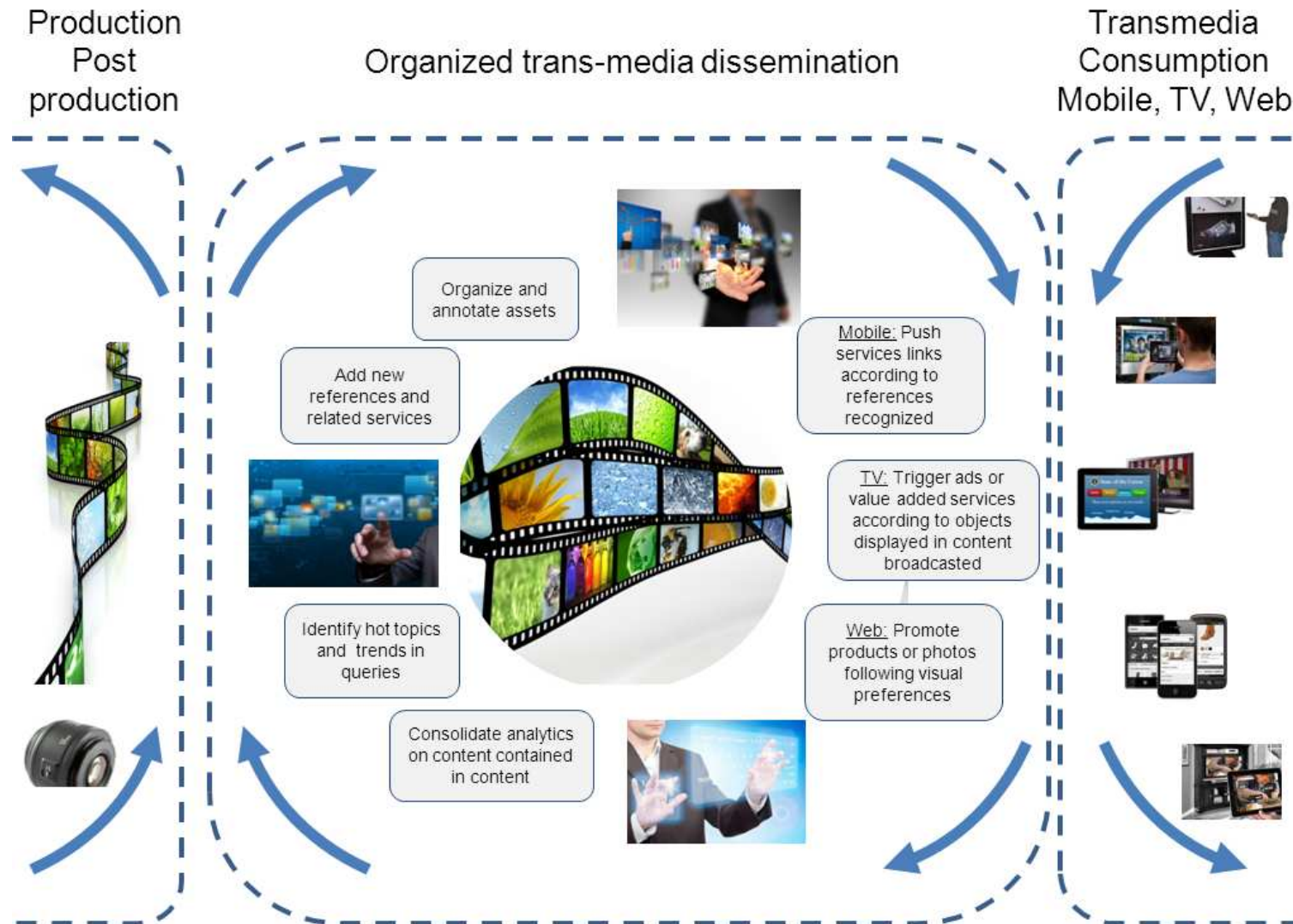
Transmedia applications are using several devices either simultaneously or for the same purpose



# The Visual Factory offers on demand visual recognition services

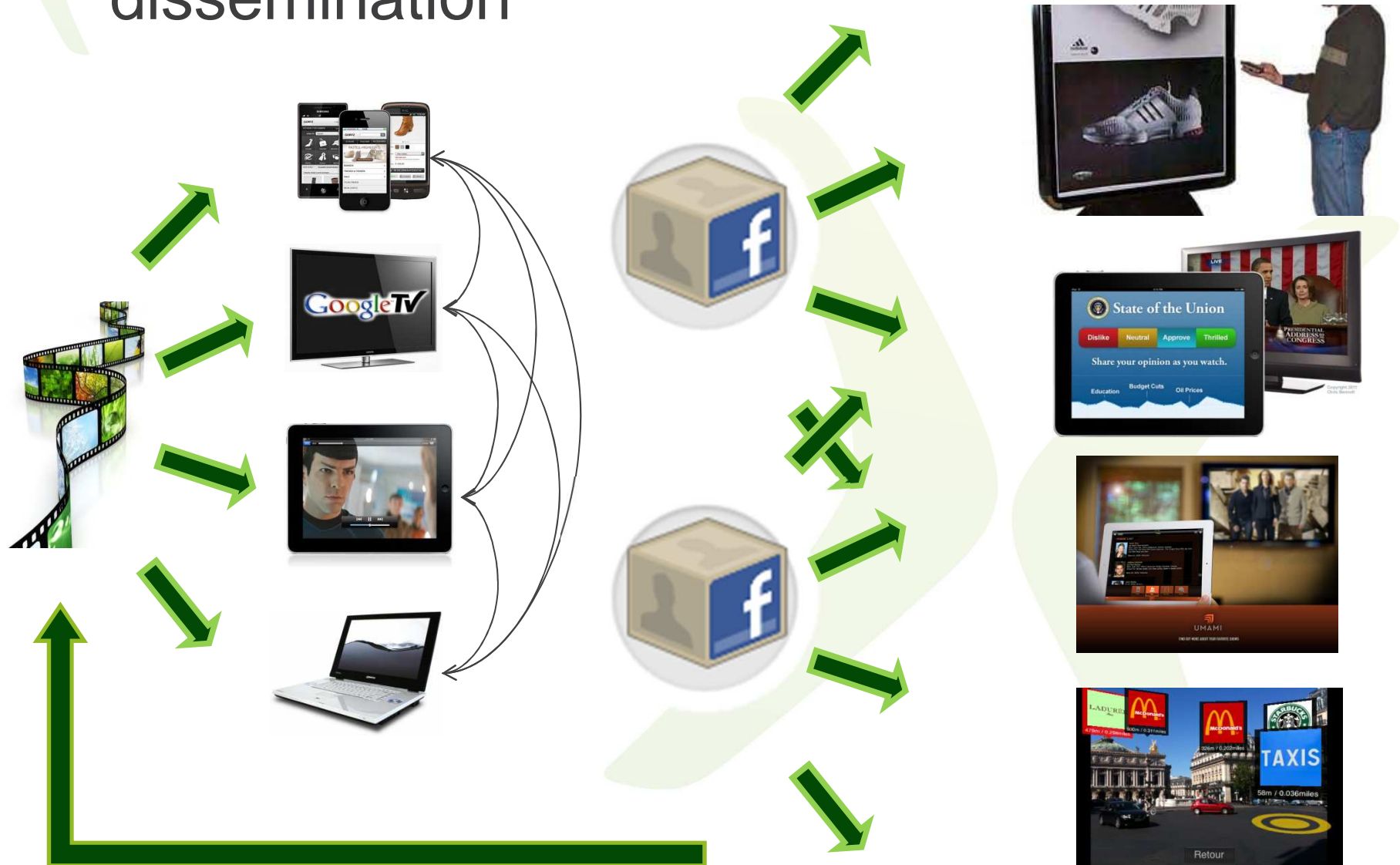


# To organize, deliver and monitor transmedia services





# Trans-media \* Social = Increased media dissemination



# Our vision of Content Image Based Retrieval requirements



## A visual recognition app store

- Comprehensive platform including a lot of media descriptions
- Offering a wide range of recognition capabilities powered by CEA LIST
- Continuously extending



## End user autonomy is key

- Assisted search
- Addressing multiple search situations
- Recognition capabilities combined according to the query and to search objectives
- Autonomy facilitates content confidentiality



## Real time search

- Optimized end user interaction
- Though exhaustive search



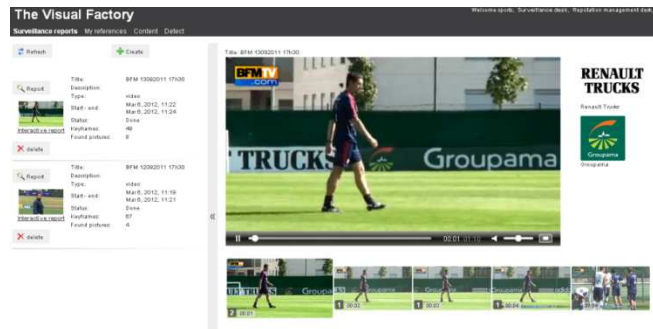
## Real time ingest and index

- Parallel ingestion and description
- Immediate content indexation, no affordable delay in index optimization

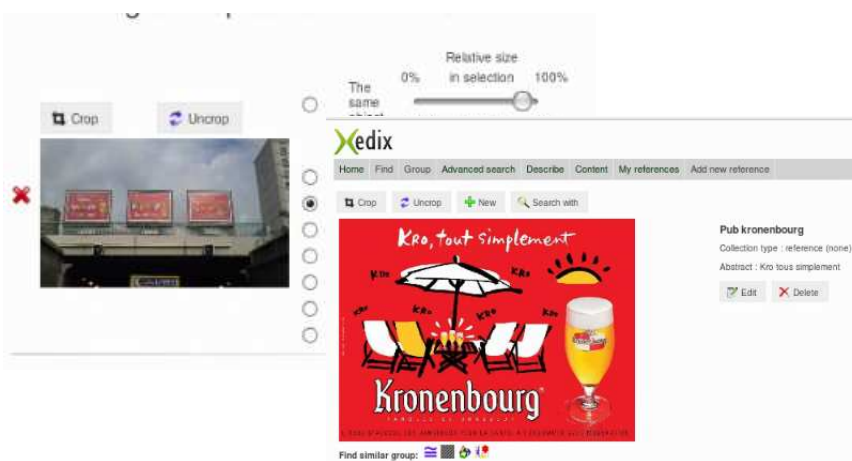
# often gets to a big data issue

Query size and complexity

Multiple video stream live analysis  
Extract information from video and match these with limited amount of references



Few user  
Expect real time responses to images used to scan massive video repositories



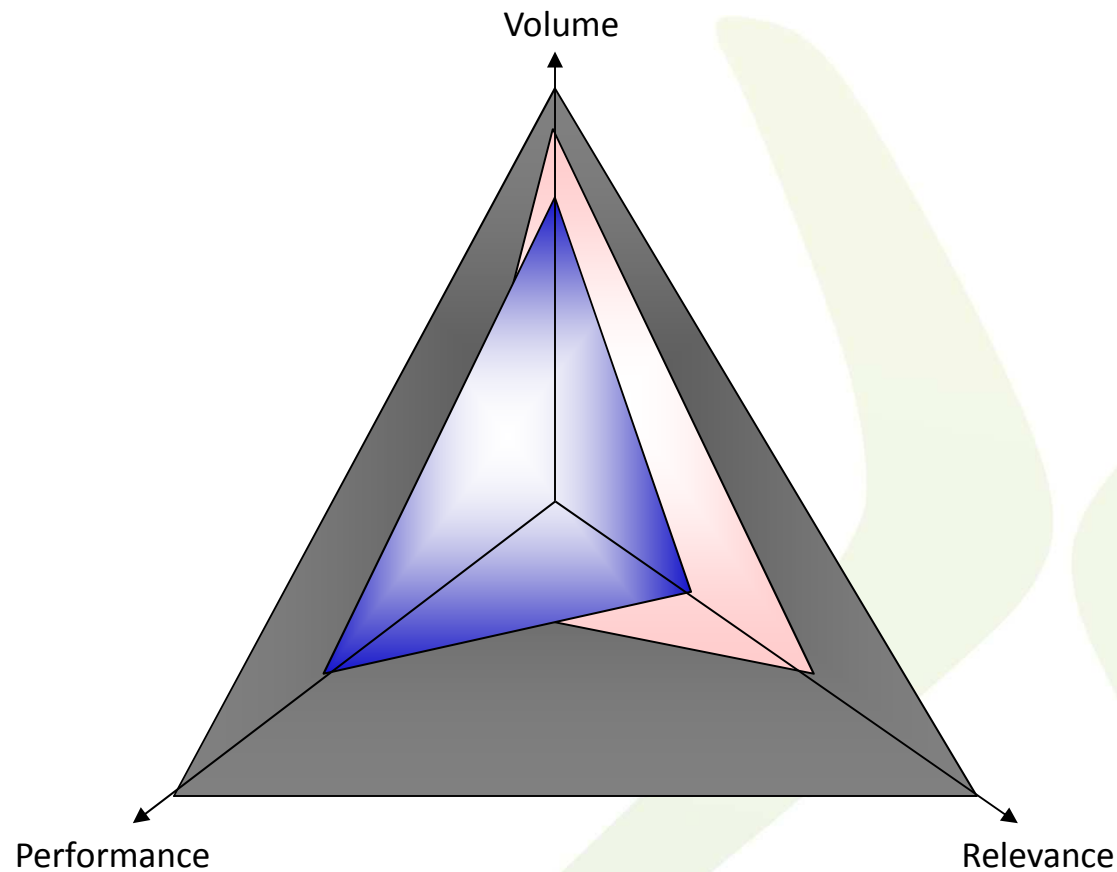
10 ans de vidéo analysés en 10 jours et scrutés en moins de 10 secondes



Few user  
Expect real time responses to images used to scan massive video repositories

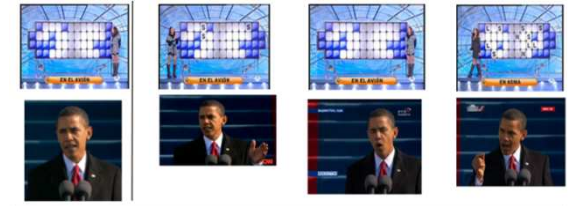
Repository size and variability

In order to keep relevance and response times under control regardless the data volume at stake





# Big files and descriptions



- Size of files
  - HD, THD, resolution increase, visual information available improved as well
- Number of descriptions
  - Multiple modalities
  - Multiple scales



# Velocity in video query processing

- Real time processing
  - Images extraction
  - Images description
  - Visual Query
- Requires HPC skills

Report name: TF1 FRANCE-BOSNIE\_11.10.2011 - 9

Display all



Group of 2 images



Group of 5 images



Group of 3 images



Group of 1 images



Titre: BFM 13092011 17h30



RENAULT  
TRUCKS

Renault Trucks



Group of 4 images



# Visual entity extractions and qualifications

Xedix

Welcome kantapress, Content management desk, Service desk, Administration desk, logout

Home Load **Content** Find Organize Annotate Create references Classifier My references Describe Visual browsing Visual report Add new picture

Pages: 1 2 3 4 5 6 7 8 »  
Showing 1 - 32 of 236



Group of 63 collections and 63 images





# X requires both HPC and big data skills

**Xedix** Welcome sports, Content management desk, Service desk, Administration desk logout

Home Load Content Find Organize Annotate Create references Classifier **My references** Describe Visual browsing Visual shopping Visual report Advanced search Add new picture

Showing 1 - 7 of 7

SOCIETE GENERALE Groupama RENAULT TRUCKS Red Bull DHL Red Bull racing MasterCard

Group of 1 images

MasterCard

Group of 7 images

DHL

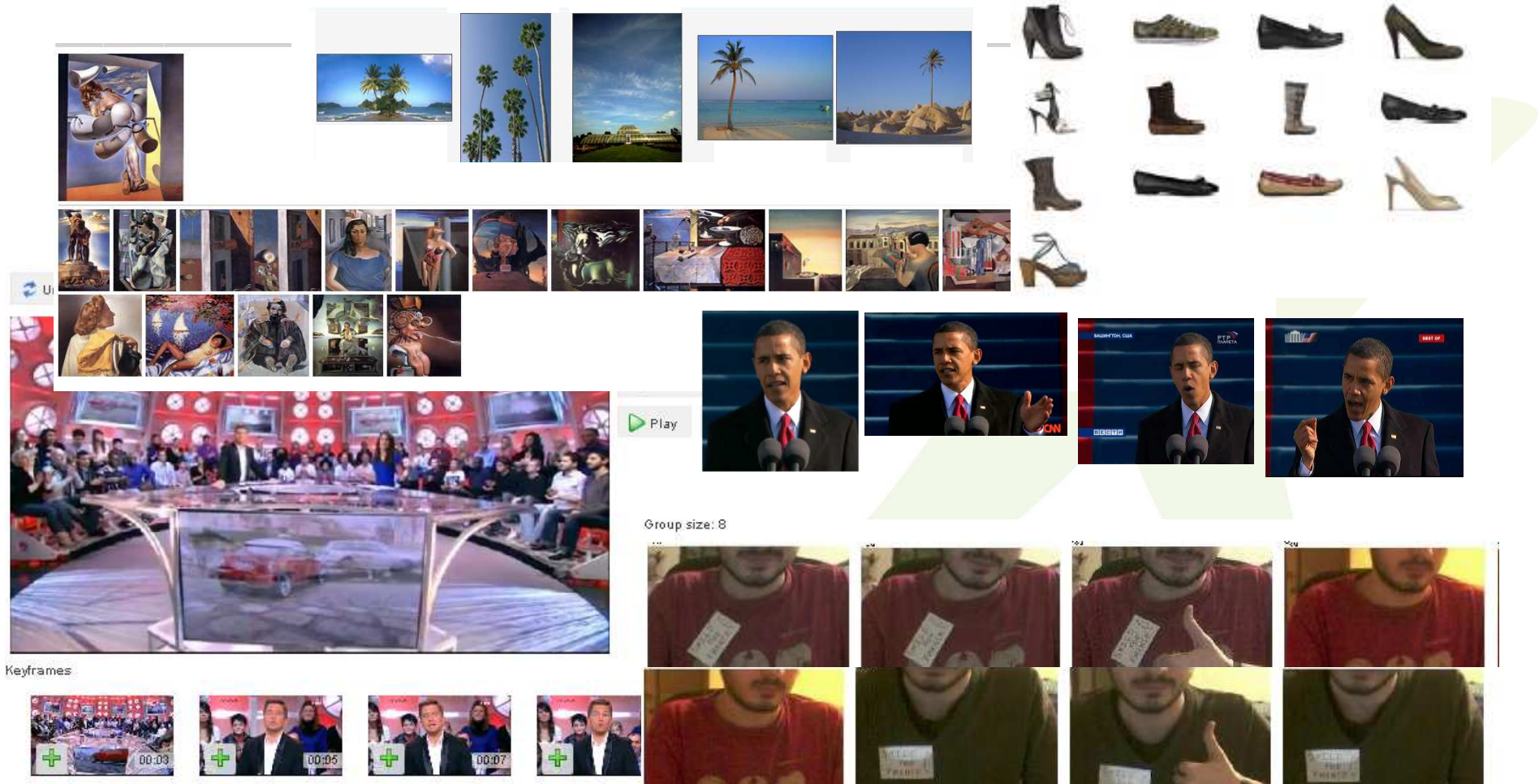
Group of 4 images

SOCIETE GENERALE




# Variety in content and format

- Makes it impossible to anticipate the cost of content analysis



Is reinforced by the need to combine recognition modalities to keep query relevance

Crop
Uncrop



Relative size  
in selection 100%  
in result 0%

☐ The same object

☐ Picture having a subset in common

☐ Picture containing the selected logo

☐ Same picture as selection

☐ Picture with color similarity


☐ Picture with skin similarity

☐ Picture with shape similarity

☐ Same style

☒ Morpho Face recognition

Crop
Uncrop



Relative size  
in selection 100%  
in result 0%

☐ The same object

☒ Picture containing the selected logo

☐ Same picture as selection

☐ Picture with color similarity

☐ Picture with skin similarity

☐ Picture with shape similarity

☐ Same style

☐ Morpho Face recognition


Operator: AND OR

Search when you are done

Search in: All Content Reference

Drag & Drop content it in this box

Crop
Uncrop



Relative size  
in selection 100%  
in result 0%

☐ The same object

☐ Picture having a subset in common

☐ Picture containing the selected logo

☐ Same picture as selection

☐ Picture with color similarity


☐ Picture with skin similarity

☐ Picture with shape similarity

☐ Same style

☒ Morpho Face recognition

Crop
Uncrop



Relative size  
in selection 100%  
in result 0%

☐ The same object

☐ Picture having a subset in common

☒ Picture containing the selected logo

☐ Same picture as selection

☐ Picture with color similarity

☐ Picture with skin similarity

☐ Picture with shape similarity

☐ Same style

☐ Morpho Face recognition

BAUME & MERCIER A MOI



id: media\_130806135450681373  
Title: Baume et Mercier



Title: Teri Hatcher

# The Visual Factory

Visual processing depends so much of image content that it is often tough to anticipate the appropriate infrastructure sizing

# Big is also a point of view





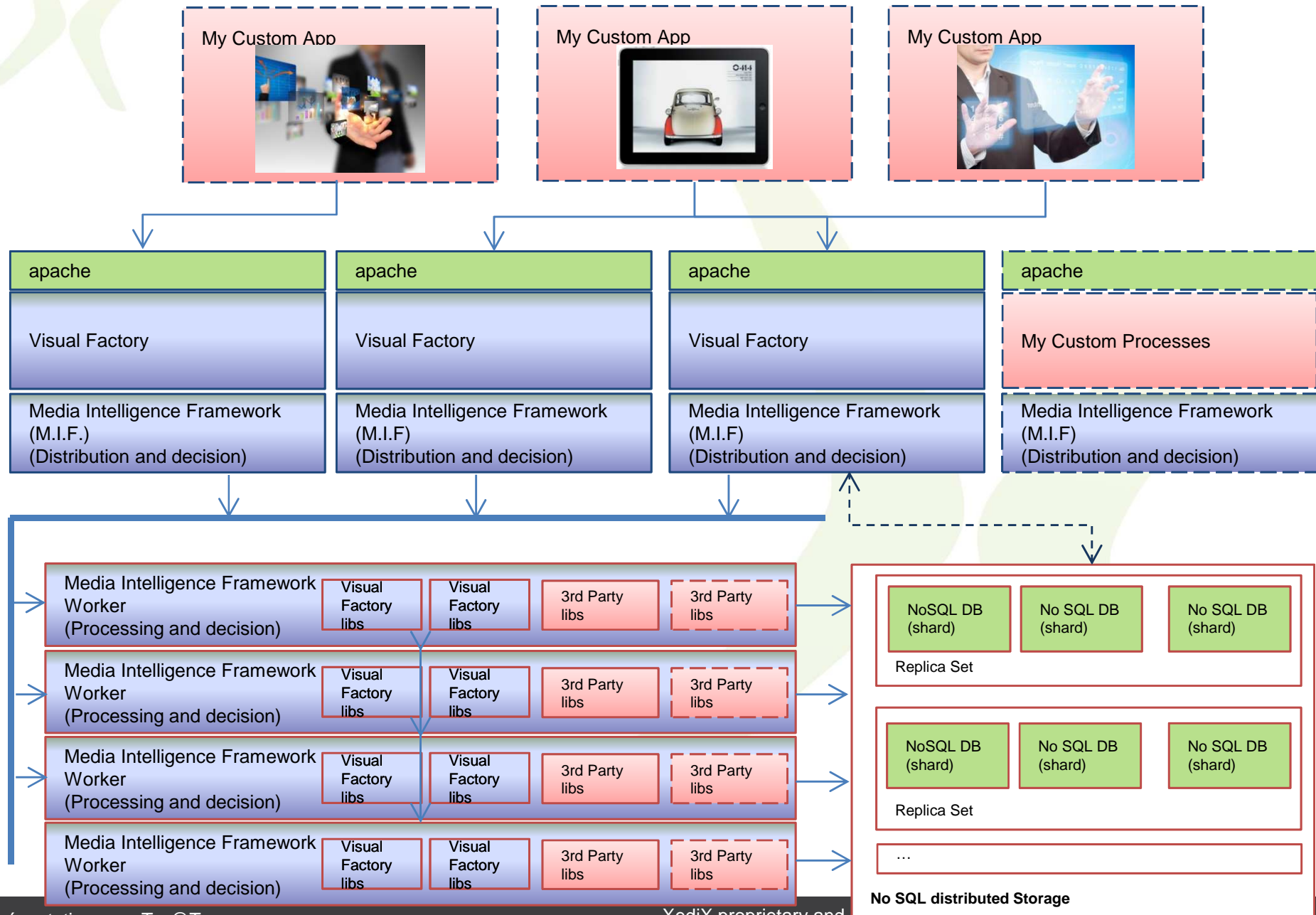
# Dealing with hardware available is part of the challenge



- But history often leads to significant heterogeneity in hardware available



And requires huge flexibility in distribution and parallel processing policies



# The Visual Factory

## Questions ?

## Addressing the big data challenges

Pascal Ruby

[pascal.ruby@xedix.eu](mailto:pascal.ruby@xedix.eu)

+33 6 59 86 64 91