

**Context:**

Barco ([www.barco.com](http://www.barco.com)), a global technology international company headquartered in Belgium, designs and develops visualization products for a variety of selected professional markets (e.g. digital cinema, digital signage, broadcast production, audio-visual events, collaborative workspaces, control rooms, healthcare, etc.).

High capacity, content- and context-aware communication & network platforms supporting the existence of smart professional visualisation infrastructures, are considered as a key enabler for sustainability and future growth in these markets, opening the way to quality enabled service business models of high potential value for the European Industry as well as for new entrants, and particularly SMEs.

Making this vision successful is well in line with the goals of the Future Internet Public-Private-Partnership. This position paper focuses on generic requirements regarding smart visualization infrastructures for professional (b2b) application use cases and explores into more details a potential scenario for large scale experimentation.

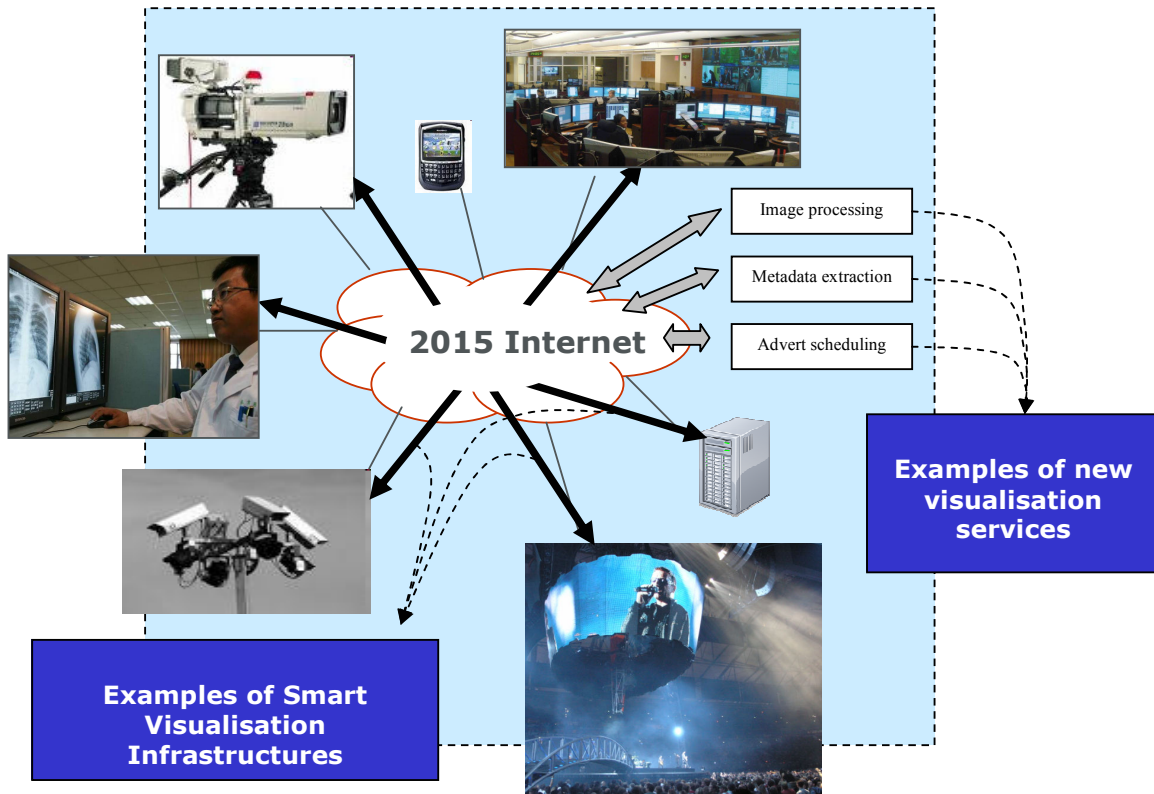


Fig.1 – Potential use cases & scenarios for b2b visualization markets

**1. Use cases & scenarios**

The number of potential use cases & scenarios for smart visualization infrastructures can be as big as the number of application areas considered (cf. Fig.1). Visualization is indeed a common feature of most application domains in professional markets. E.g. recent statistics<sup>1</sup> report that Barco visualization solutions are used to monitor half of the

<sup>1</sup> <http://www.barco.com/aboutbarco/markets.aspx>

world's electricity transport (Energy/Utilities), support medical professionals a billion times a year (Healthcare), help 2.5 billion commuters get home safely every day (Transport/Mobility), support security management in more than 100 metropolitan centers (Smart City), and serve world's biggest brands in over 50 world capitals (Content/Smart City), among others. While most of these markets are currently building on localized & dedicated hardware centric with proprietary networks offerings, there is a strong and common need for shifting to a distributed environment where infrastructures, content, and services could be considered independently. This implies the need for a powerful internet platform able to support smart b2b visualization infrastructures with adequate QoS.

## 2. Related Internet functionalities & technologies

A few examples of such smart visualization infrastructures are given in Fig.1. All share the following generic requirements, having to handle high quality visual content in real time or near real time:

- need for high QoS (in particular reliability, security & privacy), similar to what is offered by dedicated b2b networks
- need for large bandwidth, supporting formats beyond HD (up to 32Mpixels images in the near future)
- need for low latency, enabling real-time image processing services
- need for context awareness
- need for content awareness
- need for standardized APIs & other aspects of media exchange, ensuring inter-operability of content delivery platforms

## 3. Functionalities required for the core technology platform

As mentioned above, visualization is actually a common feature of most application domains. It is therefore to be considered whether networked visualization related technologies should constitute a common enabling technology of the Future Internet Core Technology Platform, including in particular:

- technologies for smart & scalable compression aimed at maintaining high quality and working in low latency,
- intelligent middle ware systems to manage media, storage, adaptive delivery, etc
- computer platforms (e.g. GPGPU based) & resources abstraction

## 4. Proposed experimentation test-bed

Remote & networked based Digital Cinema Content Management:

- embracing the full Digital Cinema (DC) ecosystem:
  - o content provider
  - o system provider
  - o new service providers,
  - o exhibitors (multiple buildings, multiple theaters, multiple type of screens including signage & billboards as well)
- relying on a powerful internet platform,
  - o providing the same level of reliability and QoS as proprietary/dedicated network,
  - o capable to handle huge volume of data (1 movie is between 100GB and 2TB),
  - o ensuring time synchronization between audio & video
  - o being media aware, in order to best react to potential problems such as congestion, oversubscription, etc. by e.g. knowing what to drop and not to drop randomly,
  - o offering easy to use hooks towards media application layer
- demonstrating new applications and services, such as
  - o automated scheduling based on automatically generated metadata,
  - o support for new types of content,
  - o + others to be defined

## 5. BARCO potential role as use case provider

- o Definition of requirements

- Definition of APIs & standardisation
- System integration
- Contribution to the identification & demonstration of new services & associated business models within the full ecosystem

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