Towards a Content-Centric Internet

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Why Content-Centric Internet

- Service/Media
- Information/Adaptation
- Content
- Network

Is Used

Is Extracted

Supports

Is Used

Is Used

Protects

Security/Privacy
Today's’ Internet Architecture
How can this schema be enhanced?

- If content could be stored/cached closer to the end users, then content delivery would have been much more efficient.

- If routers could identify/analyse what content is flowing through them, the search engines would gain much better knowledge of content location and provide information even on “live” streams.

- If the network could identify what is the best path to the user (less congestion, lower delay, more bandwidth), it could provide a better way to deliver data.

- If content could be adapted to the context, the user would have a much easier life e.g. when entering a living room, a phone TV session could transfer to the big screen and adapt to the resolution offered there.
Evolutionary FI Architecture (EFIA)
Advantages of EFIA

- Content-Centric
- Self-contained
- Backwards compatibility
- Flexibility
- Easy Deployment

- Scalability (?)
- Efficiency (?)
- Robustness (?)
Next Step?
New Media as … Content Objects

- Move from today’s opaque stream of pixels and audio samples to …

- **polymorphic** and **autonomous content components** with spatial and temporal relationships

- as **media containers** and **content-centric networking enablers**.
Autonomous Layer-less Object Architecture (ALLOA)

- **Object**
  - **Media**
  - **Characteristics**
  - **Behaviour**
  - **Relations**
  - **Rules**

- **Object Execution/Handling Environment**

- **Polymorphism**
- **Interoperability**
- **Federation**

- Anything that a human can perceive with his senses (a speaking person, a violin, a tear on your cheek, etc.)

- How the Environment affects the Object (Discovered, retrieved, casted, adapted, delivered, transformed, presented)

- Meaningful description of the object.

- How the Object affects the Environment

- Object to Objects Interaction (Refer to time, space, synchronisation issues)
Creating 3D worlds from 2D sketches
Value of Content Objects

- Create new content as **Content Objects Compositions/mash-ups**.
- **Re-use of objects** from existing content for the creation of new AV content, becomes much less cumbersome, allowing fast and easy media.
- **On-line collaboration** to edit AV content is simplified.
- **Personalisation enters a new stage**, evolving from a selection of prepared content to a just-in-time retrieval and composition.
- **Insertion of stored AV content** into real-time communications is becoming feasible.
- Combination of **captured AV content with synthetic 3D content** creates exciting mixed-reality experiences.
- **Network awareness, content protection** and **security** are inherently offered.
FIA Consolidated Approach

Research
Innovative Step (5-10 years)

Content Objects Mashups
(Media, Information, Characteristics, Behaviour, Context, Security/Usage Rights)

Services Support
(Application Logic, Searching/Indexing, Caching, Orchestration,...)

Virtualised Network
(Self-management, Virtual Resources, Content Aware Routing, ...)

Deployment
Innovative Step (7-12 years)

Evolutionary Step (3-7 years)

Evolutionary Step (6-9 years)
Thank you

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