



INFORMATION TECHNOLOGY FOR EUROPEAN ADVANCEMENT

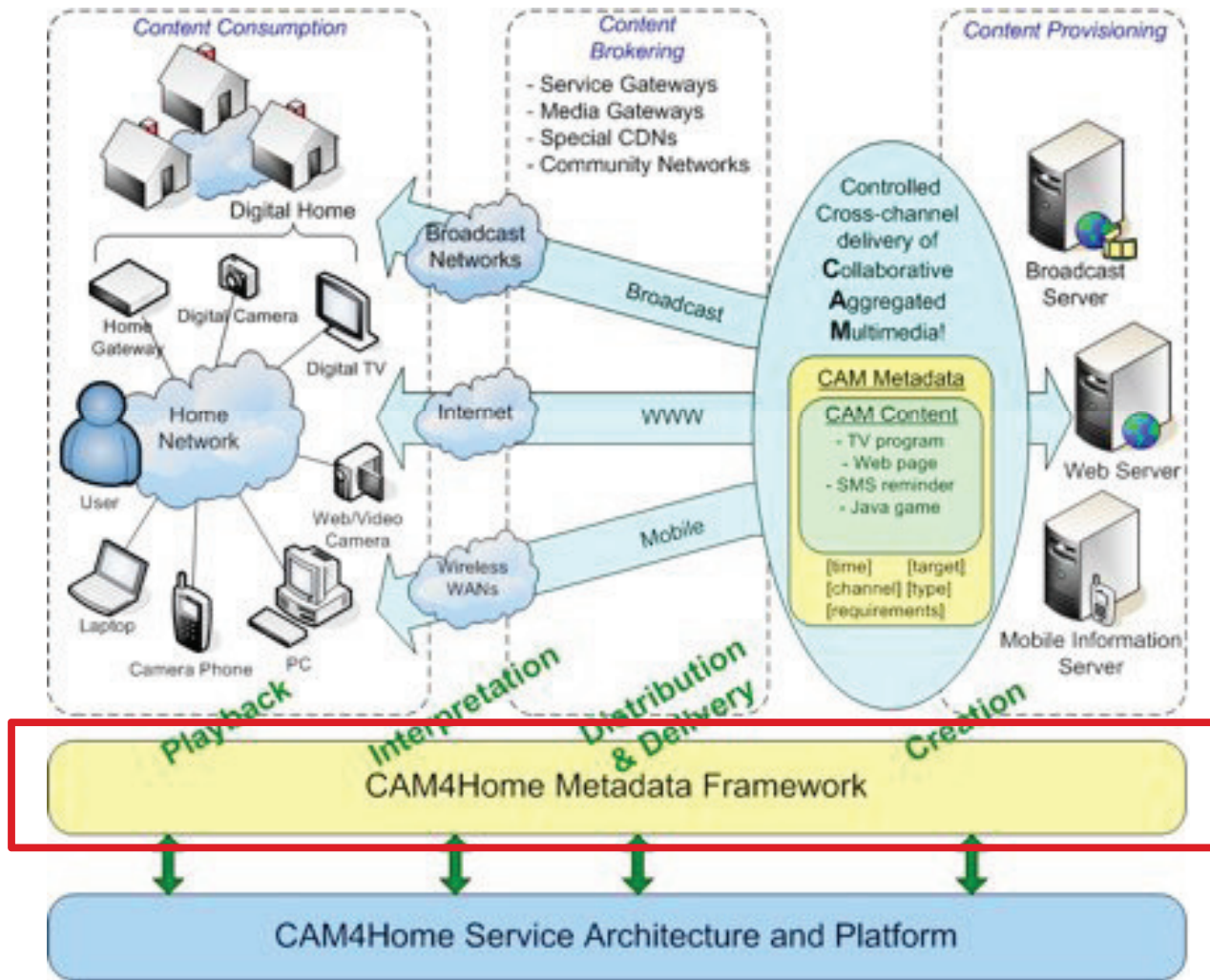


Metadata roles within CAM4Home

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Remember CAM4Home ?



Intelligent Delivery is ...

- **Adequate transformations applied to content**
- **Adequacy measured in terms of :**
 - Semantic of contents
 - *What parts of content are interesting the users?*
 - User interest, User preferences
 - *Guide the selection of contents and theirs adaptations*
 - Device capabilities, Network capabilities
 - *Limited capabilities, limited bandwitdh*
 - Service capabilities
 - *Available media transformation services on the network : such as transcoding servers.*

Intelligent Delivery – use case (1)



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- **Examples of Intelligent Delivery**

- Tom is interested by the news concerning European elections
- Tom has not enough time to consult the entire news journals
- Tom asks CAM4Home client to get fresh information about elections
- Last news reports are available as video files

Intelligent Delivery – use case (2)

- **The System knows that**
 - European elections novelties appears in :
 - Video M1 form t1 to t2, Video M2 from t3 to t4
 - Tom has little time to consult content
 - It exists services for playing at hi-speed videos
 - It exists services for extracting sequence of videos
 - It exists services for joining sequence of videos
- **The System decides**
 - To extract the video sequences and send them to Tom

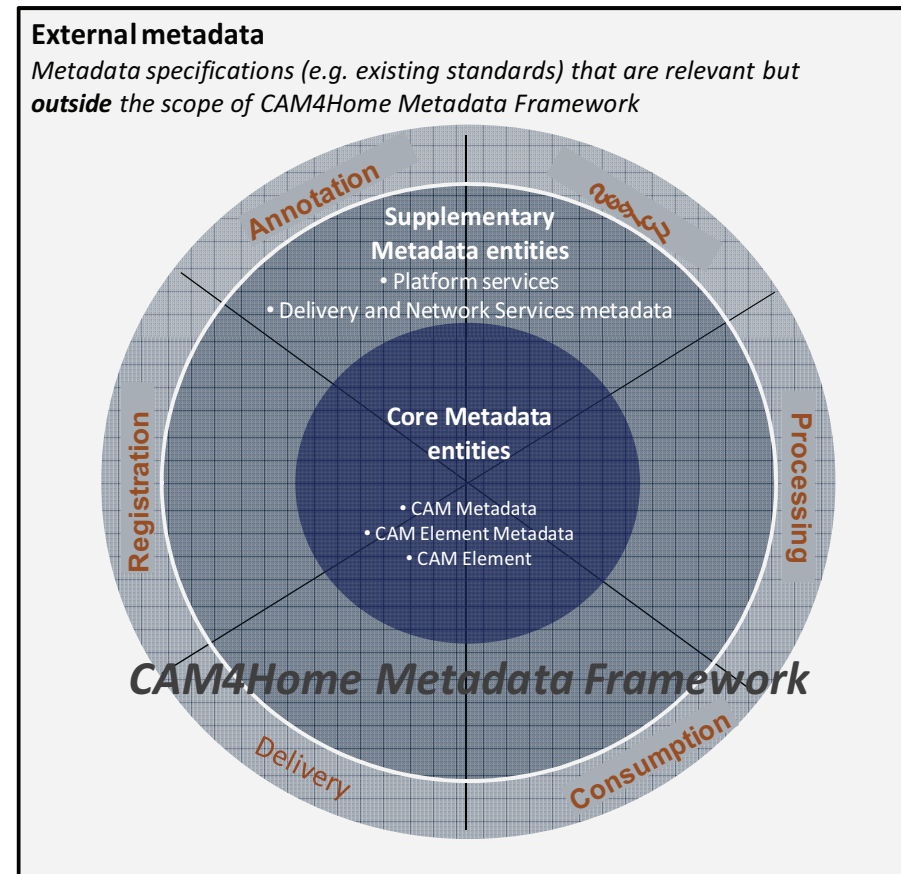
Intelligent Delivery – requirements

- **Knowledge** about
 - Content of media objects *MPEG-7; MPEG-21; Tv-AnyTime...*
 - User Profiling *MPEG-7...*
 - Device Capacities *MPEG-21 DIA; CC/PP...*
 - Network Characteristics *MPEG-21 DIA; CC/PP...*
 - Network Service Characteristics
- **Source of knowledge**
 - Logs, Forms, Web 2.0 (comments ...)

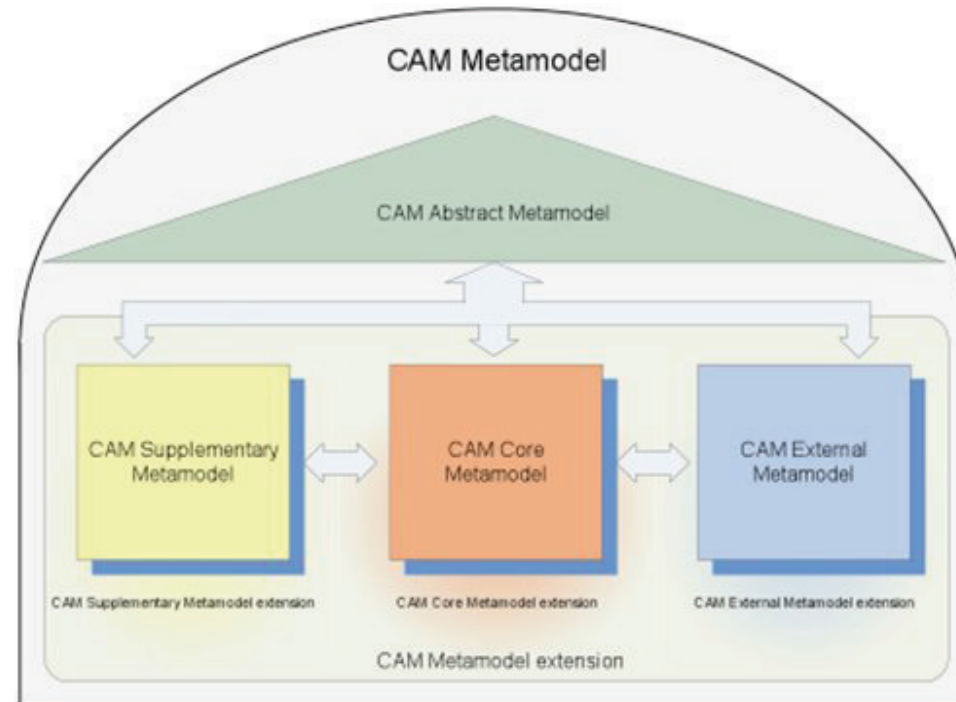
➔ Deal with the **heterogeneity** of standards

- **Unified metadata framework**

- Easy to use and to extend
- Integrate community created knowledge
- Model deployment units
 - single CAM Objects
 - aggregated CAM Bundles



CAM Metadata Framework for Intelligent Delivery



CAM Abstract Metamodel : ... ensuring the extensibility

CAM Core Metamodel: ... about content

CAM Supplementary Metamodel : ... about context

External Metamodel : metadata from existing standards

CAM Abstract Metamodel – core concepts

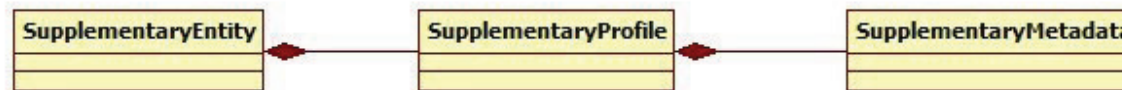


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- **Generic (abstract) core concepts**
 - Content feature descriptors
 - About the content itself : genre, appearing concepts
 - Content essence descriptors
 - About the location of the content
 - Content aggregative descriptor
 - About the relation inter-objects within an aggregation
 - Community created metadata
 - About comments, tags, ratings, ...

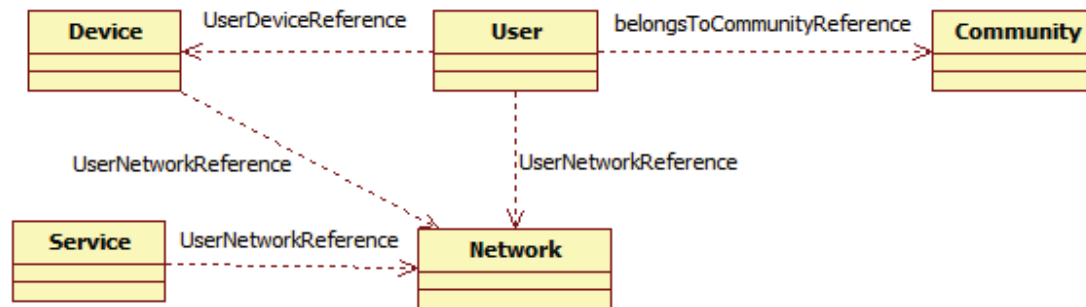
CAM Abstract Metamodel – supplementary concepts

- **Supplementary Entities, Profiles and Metadata**



- **Community, Device, Network, User, Service**

- **Inter-entities dependancies**



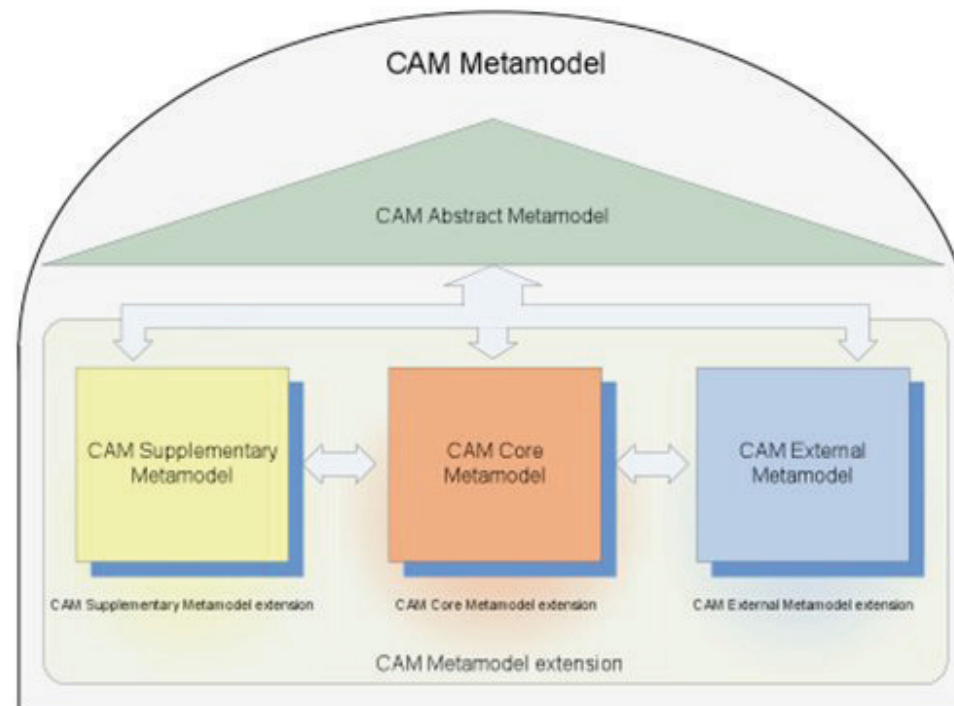
CAM Abstract Metamodel – external concepts



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- **Bridges existing standards in CAM4Home descriptions**
- **Generic external metadata properties**
 - externalMetadataURI
 - externalMetadataSchema
 - externalMetadataSchemaURI
 - metadataValue

CAM Metadata Framework for Intelligent Delivery



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CAM Metadata Framework – Core Metamodel

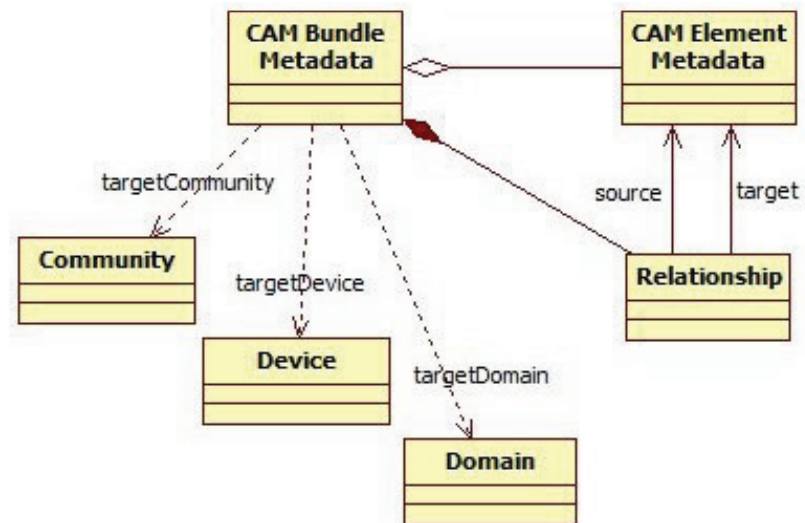


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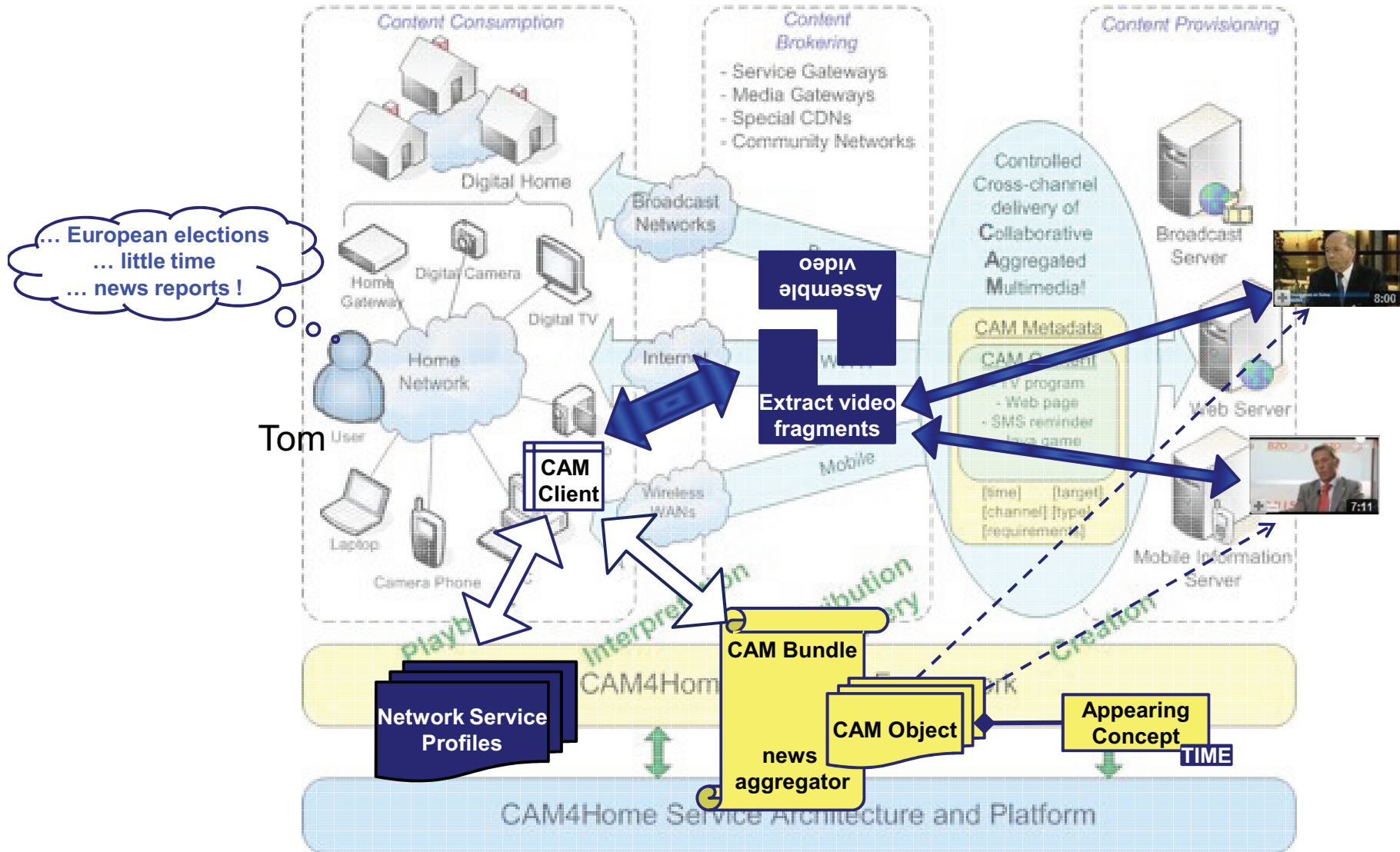
- **Core Metamodel introduces**
 - Multimedia CAM Objects
 - Audios, Videos, Images, Documents
 - Services CAM Objects
 - Downloadable Application, Software Service, User Services
 - CAM Bundles
 - Aggregation of multimedia CAM objects and services CAM objects
 - Community Created Metadata
 - Comments, Social tags, User ratings

CAM Metadata Framework – Core Metamodel

- **CAM Bundle aggregates content**
 - by describing inter-CAM Objects relations
 - for user communities
 - *targetCommunityReference*
 - for access devices
 - *targetDeviceReference*
 - for (generic) domains
 - *targetDomains*



Intelligent delivery within CAM4Home



Conclusions

- Metadata framework **provides knowledge** about
 - simple and aggregated **Content**
 - delivery and use **Context**
- Metadata framework is **extensible**
 - CAM Abstract Metamodel
- Metadata framework **integrates others standards**
- The implementation of metadata framework
 - Uses an RDF based implementation
 - Ready for the next ITEA2 Demonstrator