Semantrix SM3 : Social & Multimedia Metadata Management

Semtech 2011

Semantrix (a word from our sponsor)

Semantrix	• Semantic & Knowledge Based Systems in OZ • Represent TopQuadrant & Ontotext
Specialising in Search, Multimedia, and Defence applications	• SM3: UGC and Multimedia Metadata Management • SemanticFusion - Situational Awareness concept
Experienced in Telco Multimedia & IP delivery systems strategy	• Online, IPTV, Smart TV Strategy, etc • Smart Personalised Recommendation systems
Recognised a gap in commercial DAMS/VMS systems	• Handle broadcast metadata but inadequate for UGC and next generation Recommendations & Advertising

Semantrix SM3:
UGC – The Way of the Future…

- Social Networks and User Generated Content (UGC) are relentlessly transforming the Internet and the way users interact.

- UGC can include user created media files like videos, blogs, ratings and comments on sites, Facebook pages etc.

- UGC will be accessed by 63% of the online population (or 150 million US Online users/month)

- **Unfortunately UGC access across multiple media types is not supported by traditional DAMS/VMS systems!**

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Semantrix SM3:
Challenges

- It's hard to find a specified concept rather than just a keyword in a traditional large DAMS/VMS. More difficult again over systems composed of multiple proprietary/inflexible silos

- Users expect relevant links and recommendations to items that contain the specified concept of interest

- Providing concept links often requires new metadata that isn't available in a DAMS/VMS (typically Broadcast metadata focused)

- Users also demand regular delivery of new features, and capabilities - often requiring tight integration with other systems

- **Users want a conceptual search for a topic or theme, to return back a portfolio or set of relevant content (text & multimedia) - illustrating that topic**

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Semantrix SM3:
The Major Challenge..

- The major challenge for conceptual search is transparently to the user mapping the concept between each content domains naming scheme or ontology's - to return relevant and accurate results

- This is particularly difficult for a UGC concept search potentially across many content stores and formats such as video, music, photos, text & blogs, RSS News, etc

- Unfortunately, traditional DAMS/VMS systems cannot adequately handle concept translation, or provide appropriate linkage mechanisms or compatible levels of data interoperability.

- **SM3 is designed to map conceptual search across multiple domains and content types**

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Semantrix SM3 is the "Missing Link"

Semantrix SM3 is the "missing link" between traditional VMS or DAMS systems and modern UGC and Metadata needs

SM3 provides a unique competitive advantage

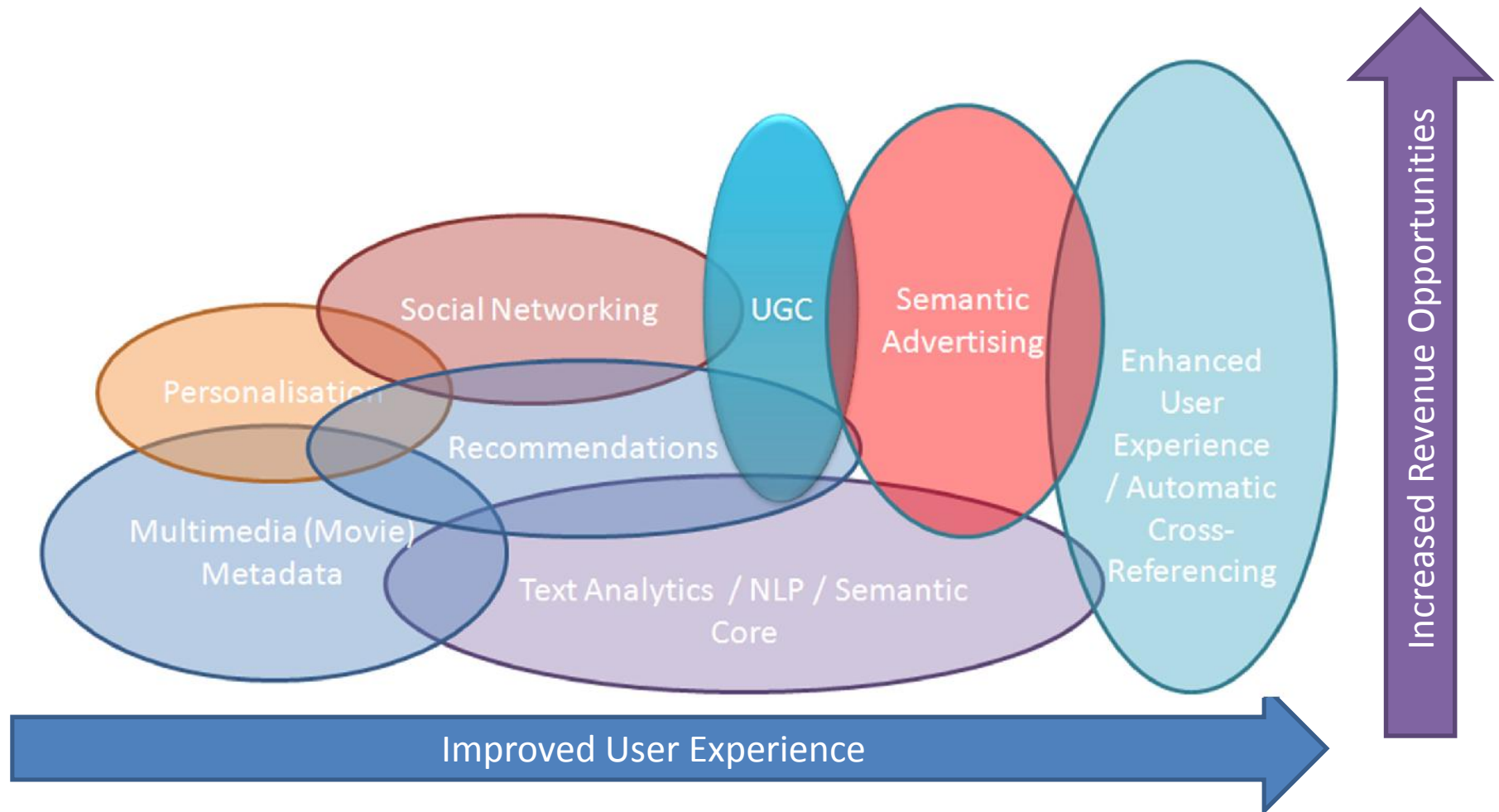semantrix

Semantrix SM3 Provides…

An adaptable text and multimedia metadata management system designed to extend and enhance existing VMS, DAMS or UGC systems

Uses Semantic Web and DSL technologies to represent and relate concepts in ways not available to traditional UGC and VMS/DAMS systems

Enhances content & metadata value using NLP/Text Analytics, Search and Ontology approaches, user and automated tagging, and entity & concept cross-referencing

Delivers next generation Personalisation, Recommendation, and Semantic Advertising capabilities

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Semantrix SM3: Improving User Experience and Revenue Opportunities

Increased Revenue Opportunities

Social Networking
UGC
Semantic Advertising
Personalisation
Enhanced User Experience / Automatic Cross-Referencing
Recommendations
Multimedia (Movie) Metadata
Text Analytics / NLP / Semantic Core

Improved User Experience

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Semantrix SM3:
## Benefits over a traditional VMS/DAMS

- Key Enterprise & Telco needs are addressed

- Easy to integrate with existing subscription and billing systems (Semantic adapters)

- Simple to integrate existing systems & silos while extending capabilities

- Superior federated Search & Recommendation capabilities

- User preferences captured

- User activity & behavioural profiling

- Usage monitoring

- Simple Administration

- Comprehensive reporting options

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# *Semantrix* is developing a Metadata System Platform that…

- Leverages Social Network, Multimedia, and Semantic Web technologies – providing capabilities unavailable through traditional database based VMS/DAMS systems

- Uses NLP and semantic domain models, automated and manual analysis, tagging, cross-referencing and search of document and multimedia content

- Uses a DSL/Ontology mapping approach to localise languages & communication styles- simplifying adding domains like Twitter

- Enables mapping key actors & concepts between blogs, news editorial, SMS, Twitter styles, abbreviations and patterns of speech

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Semantrix SM3 *core platform elements:*
Semantics, Text Analytics, Media Metadata Annotation, Ads and Workflow
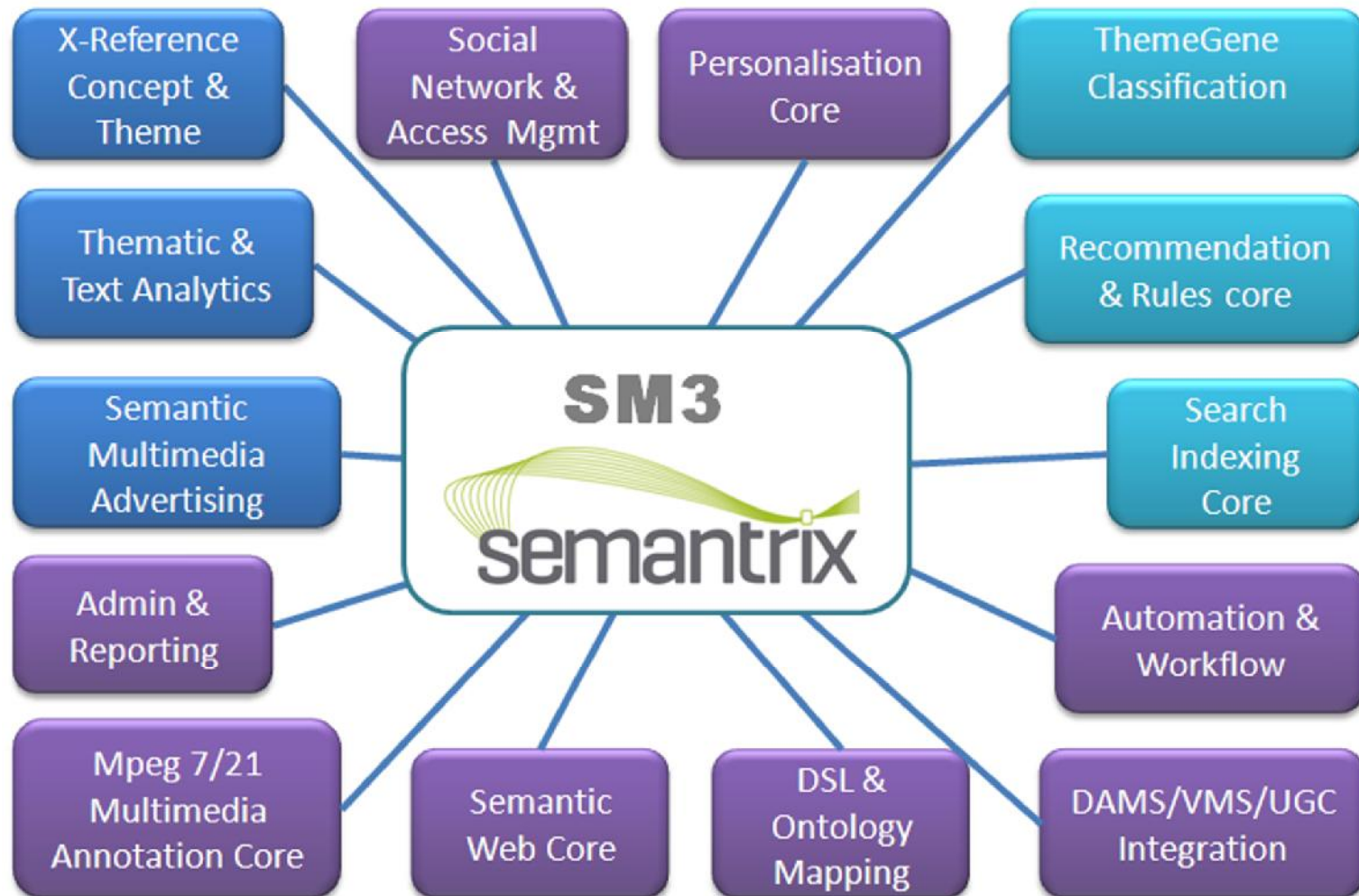
Semantrix SM3 delivers enhanced Multimedia Search, UGC Integration with VMS/DAMS, Recommendations, Advertising
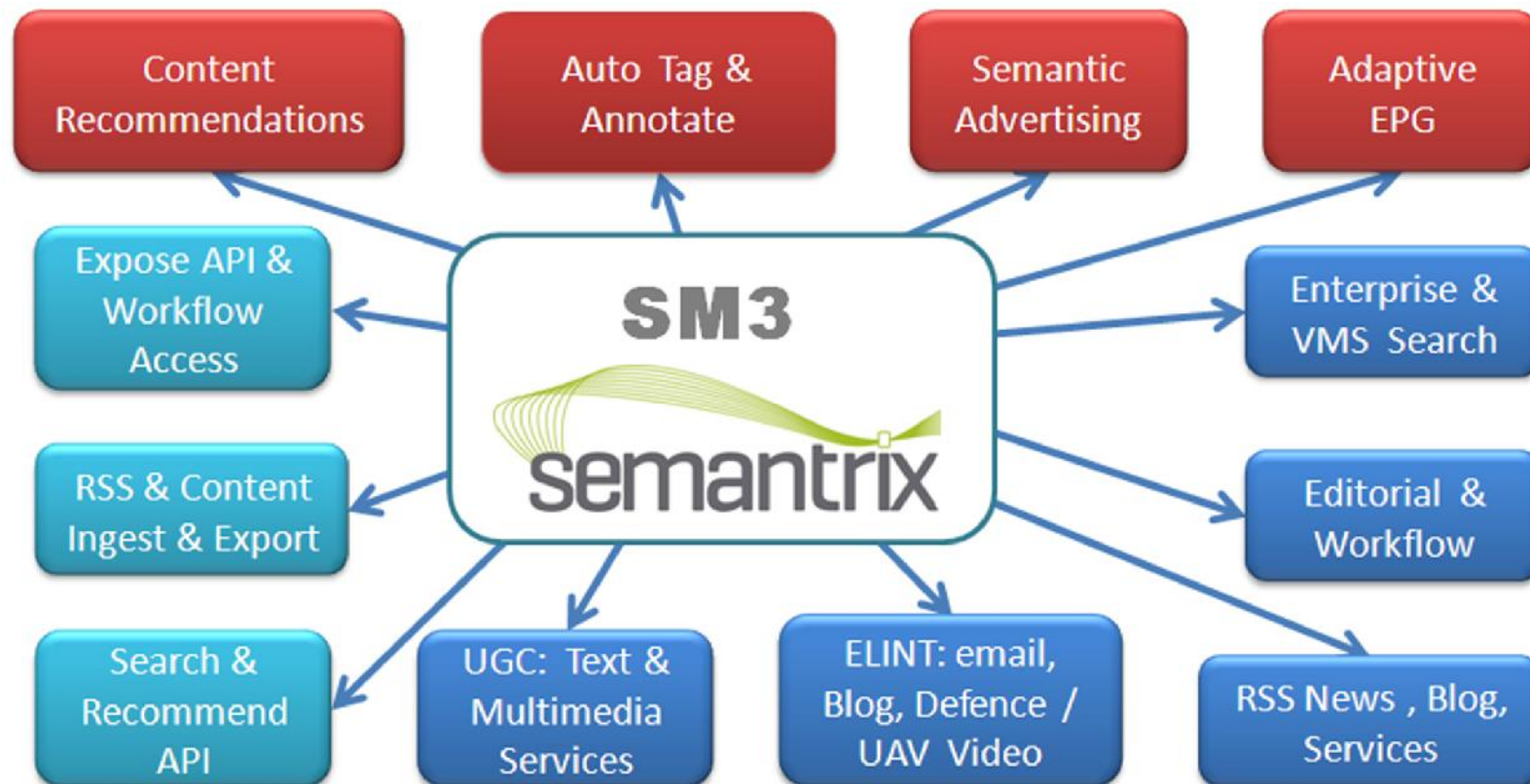
Semantrix SM3:
Social and Multimedia Metadata Manager

- Supports real-time, high transaction rate environments

- Integrated real-time search and recommendations

- Recommendations can include user, social network, population, and admin preferences

- Pluggable architecture supports third-party integration with key standards, vendors and products

- Automated analysis and tagging of content enhances value by identifying shared entities and concepts

- Uses NLP , Text Analytics, Semantic domain models, and automated and manual analysis to tag and cross-reference document and multimedia content

- Enables mapping key actors & concepts between blogs, news editorial, SMS, Twitter styles, abbreviations and patterns of speech

- Themes and personalisation improve recommendations over traditional genre approaches

- Themes maximise ROI by providing better linking to long-tail content - (80/20 rule)

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Semantrix SM3:
Why a Semantic Metadata Core?

Key Points

- By design Semantic Web technologies easily integrate, transform & query content
- Graph models are faster to design, build and extend then relational DB models
- Semantic and Text-analytics approaches are complementary
- Ideal for representing media entities & concepts.
- Easy to extend object model and create new complex queries without other query impacts

Ontology & Rules change

Support Multiple Genre's

Add Pricing Models

Add ACL Models

Movie Asset
New Movie Genres
Genre Cartoon
Genre Animation
New Pricing Model
Free
Premium
Alternate Titles
New Access Model
Personal
Social Network A

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Semantrix SM3: Generalised Core and Extended Variants/Use-Cases

Commercial Video Management and Publishing Systems, providing the missing linkage between video-specific metadata, 3rd-party content sources and the consumer

Search and Cross-referencing of UGC (Social Network content, Blogs, etc) and DAMS/VMS System content (Video, Photos, Music, etc)

Semantic Advertising – links Brand & Campaign managed Advertising via User Personalisation & Demographics, with Semantically Analysed & Tagged Media content (Online Web Page, Video, etc)

Enterprise Content Management and search, linking corporate information to related news, blogs and corporate videos for publicity, internal staff awareness, and training purposes

Defence: Situational Awareness & Homeland Security – search, indexing, & cross-referencing of entities, sensors, imagery, ELINT and email traffic analysis, etc

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Semantrix SM3: Concept Search of Text & MPEG 7/21 Multimedia Content

Key Points

- Extensible metadata core

- Supports faceted/attribute search

- Includes pluggable rules & search engines

- Semantic core uses DSL and taxonomy mapping to x-ref entities, concepts, & media

- Able to cross-reference concepts via domain ontology's and link related content elements

- MPEG7/21 used to tag metadata at video, scene, frame levels

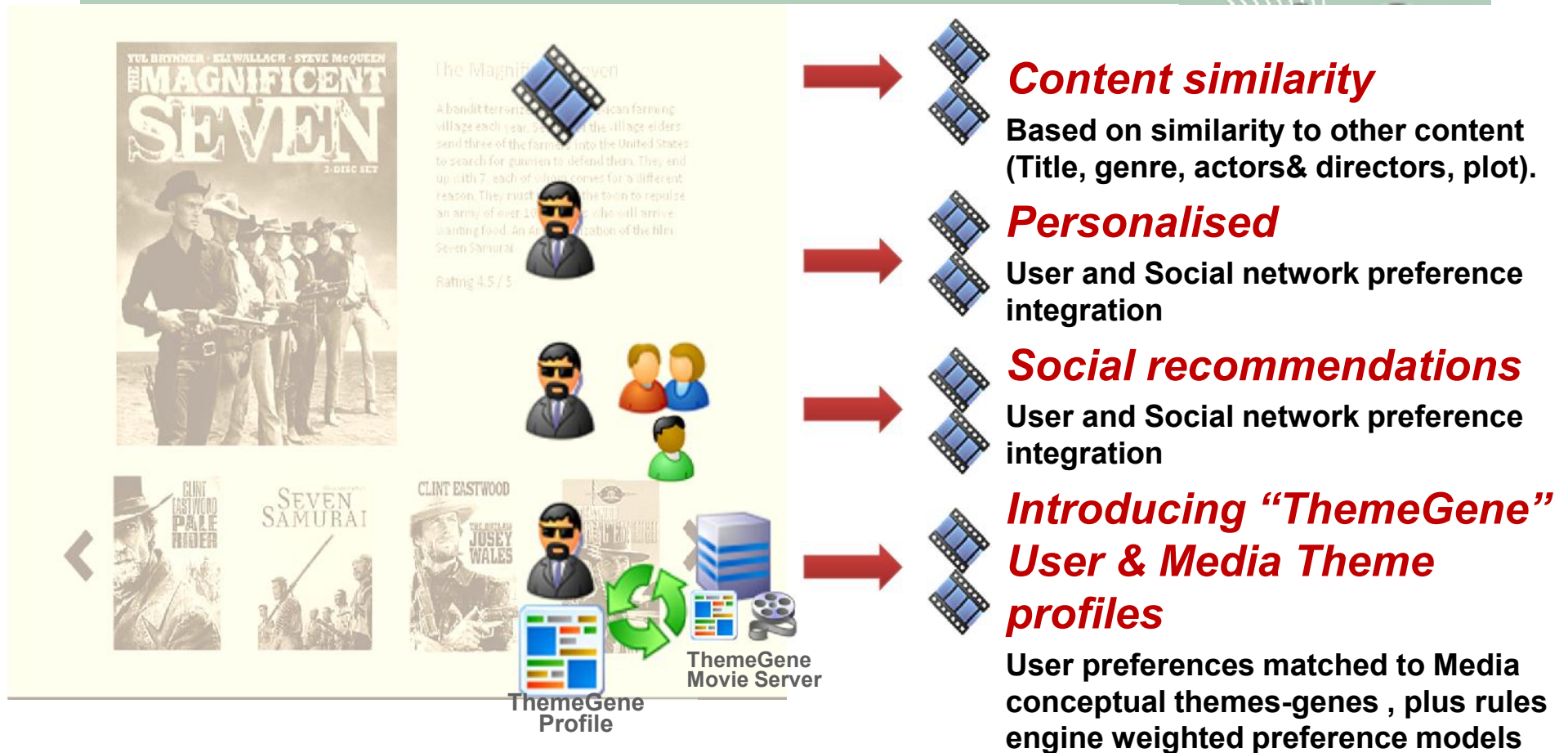- Semantic core uses DSL and taxonomy mapping to x-ref entities, concepts, & media

Map Similar Concepts between two Metadata Ontologies:
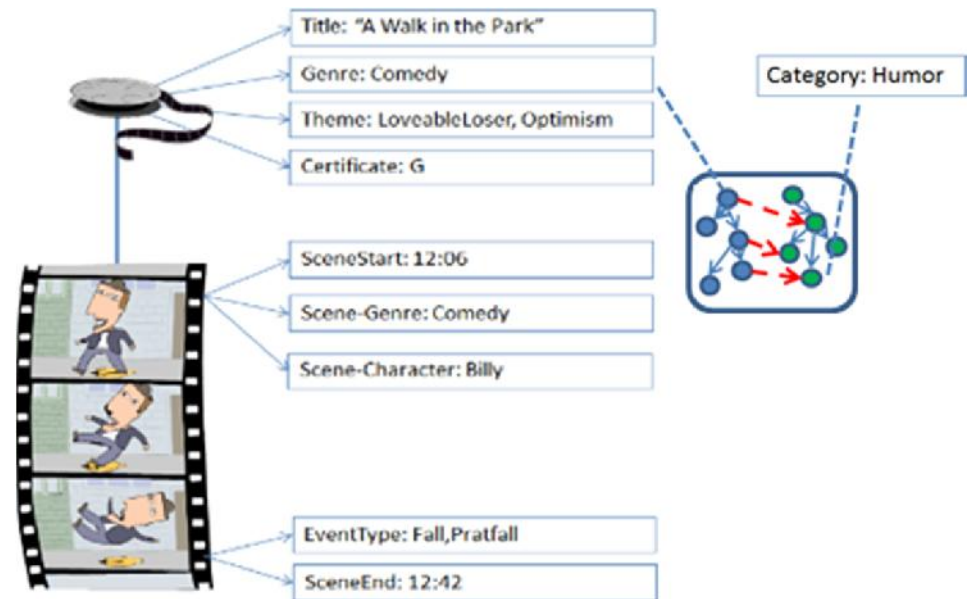
Video content tagged at scene and frame level using MPEG 7/21 Annotations

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Semantrix SM3:
Supports Multiple Independent & Combinable Recommendation Models

Content similarity

Based on similarity to other content (Title, genre, actors& directors, plot).

Personalised

User and Social network preference integration

Social recommendations

User and Social network preference integration

Introducing "ThemeGene" User & Media Theme profiles

User preferences matched to Media conceptual themes-genes , plus rules engine weighted preference models

SM3: supports time & campaign-based, personalised, social network aware, real-time TV EPG and VOD recommendations

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Semantrix SM3:
Video Content Recommendations

Key Points

- Easily extensible VOD & Movies DB metadata core
- Range of Search options
- User and Social network preference integration
- Produce personalised R/T TV EPG and VOD catalogues
- R/T EPG can be integrated with IPTV widgets & Appliances
- Semantic Advertising support
- "ThemeGene" under development – Semantic Advert & Recommendation tag model

- SM3 has a VOD/Movies semantic core and a range of search options (theme, title, actor, director, music tracks,..)
- SM3 integrates Personalisation and Social network preference capabilities
- SM3 is designed to integrate a range of catalogues/ EPG standards like TV-Anytime – to produce personalised R/T content recommendations.
- Includes a rules-based recommendation engine & can support a range of recommendation approaches
- can be integrated into IP STB or Smart AV appliances as required
- Semantic Advertising capability uses theme tags of frames ,scenes, summaries
- Semantrix are developing ThemeGene - a ConceptNet/Music-Genome like approach to enhance "match-making"

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Semantrix SM3:
UGC Tag, Cross-Reference and Search

Key Points

- Dynamic UGC Text & Multimedia tag analysis and cross-referencing

- Domain DSL Mapping between UGC styles (Twitter vs. SMS)

- Relevance decay models combat "Six degrees of Separation"

- Auto-link and Notify on content updates

Example:

- Travel posts are cross-referenced to other posts, articles & pictures about matching locations & attractions etc.

- SM3 dynamically links tagged photos as you type in your blog

Dear Diary Blog - we saw the Mona Lisa and Eiffel Tower today!

IN-TEXT LINKS
APPLY ALL
Eiffel Tower ▼
W Mona Lisa ▼

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Semantrix SM3: Semantic Advertising and UGC Opportunities

Key Points

- Semantic Advertising is one of the next key revenue growth areas – especially related to UGC

- Text Analytics, and content metadata identify the Semantic context (entities, concepts & sentiment) for a possible Ad placement – Web Page, Video, Blog, etc.

- SM3 leverages personalisation, semantically tagged media content and the capacity to dynamically analyse to optimise Ad selection and placement – using standards such as VAST.

- SM3 can be integrated with Brand & Campaign management and support targeted campaigns

- Highly targeted ads attract increased ad revenue

Why is this important:

- Advertisers spent $426 million on pre-roll ads in UGC videos in 2010.
- US advertisers will spend more than $2 billion on social networking sites by 2011.
- Nearly 150 million US web users will use social networks via any device at least monthly in 2011
- UGC accessed by 63.7% of the online population
- 20% of Internet traffic is YouTube Video & 40% is UGC traffic

Example:

- Rolex watch or Aston Martin ad with James Bond scene

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Semantrix SM3: Semantic Media Recommendation and Advertising

Key Points

- Recommend things "relevant" to an item of interest – the current web-page, current scene in a video etc.

- Recommend other items to the user

- Recommend advertising inserts for a web-page, scene in a video etc.- based on item metadata, user profile information, rules etc.

- Text Analytics allows us to identify entities, concepts and sentiment. For example (theme, genre, plot summary, etc)

- Applied to media descriptions at object, scene, and even frame level we can accurately identify potential advert targets relevant to demographic or individual preferences.

- SM3 can levers it's semantically tagged media content to deliver highly targeted adverts to users – increasing advert revenue.

Media Scene Tags

- The Aston Martin Car
- The Tom Ford Suit
- The location
- The Actor Daniel Craig
- Related James Bond Movies

Examples:

- While watching the video the Media scene tags in the movie above, can all be tied dynamically to associated advertisements (text, pictures, video), and the viewer profile, Rich single, low income father, etc

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Semantrix SM3: Enterprise Content and VMS/DAMS Search Applications

Key Points

- Provides enhanced – faceted and conceptual - search across corporate content sources for improved result relevance, beyond traditional keyword matching

- Supports Enterprise Vocabulary Management

- Analyses, cross-references & links structured & unstructured content

- Sources can include corporate text and media content like news, blogs and corporate videos for publicity, internal staff awareness, and training purposes

- Automatic linkage of related materials, portals/blogs with product documentation, etc.

- Useful for research and discovery after original project members have moved on
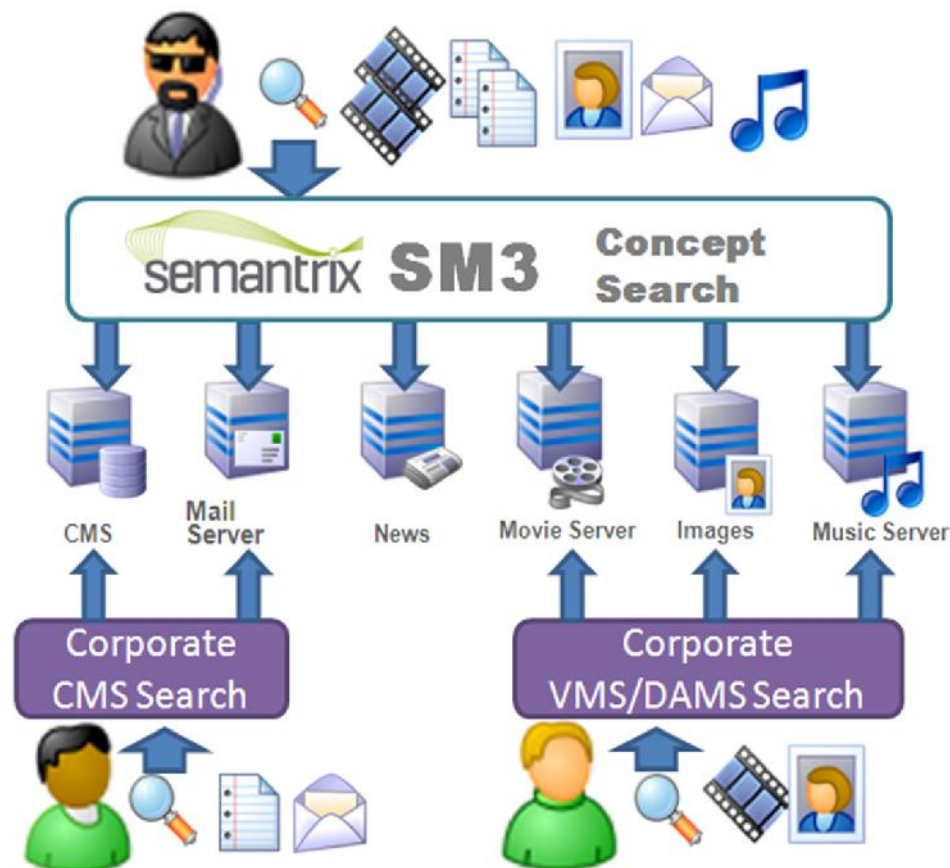
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Semantrix SM3: Defence, Situational Awareness and Homeland Security

Key Points

- Annotate and Cross-Reference security/UAV video, images, documents, reports etc.

- Extract and tag text with names, organizations, places etc.

- Resolve tags to standardised names for consistent tagging and retrieval

- Links media assets such as video to other relevant media or text assets

- Cross-Reference and Search assets by place, time, person, organization etc.

- Provides concept search & cross-reference services to processing agents in the SemanticFusion data fusion & Situational Awareness system

Example: Email and UAV Video extracted by SemanticFusion from SM3 as map overlay
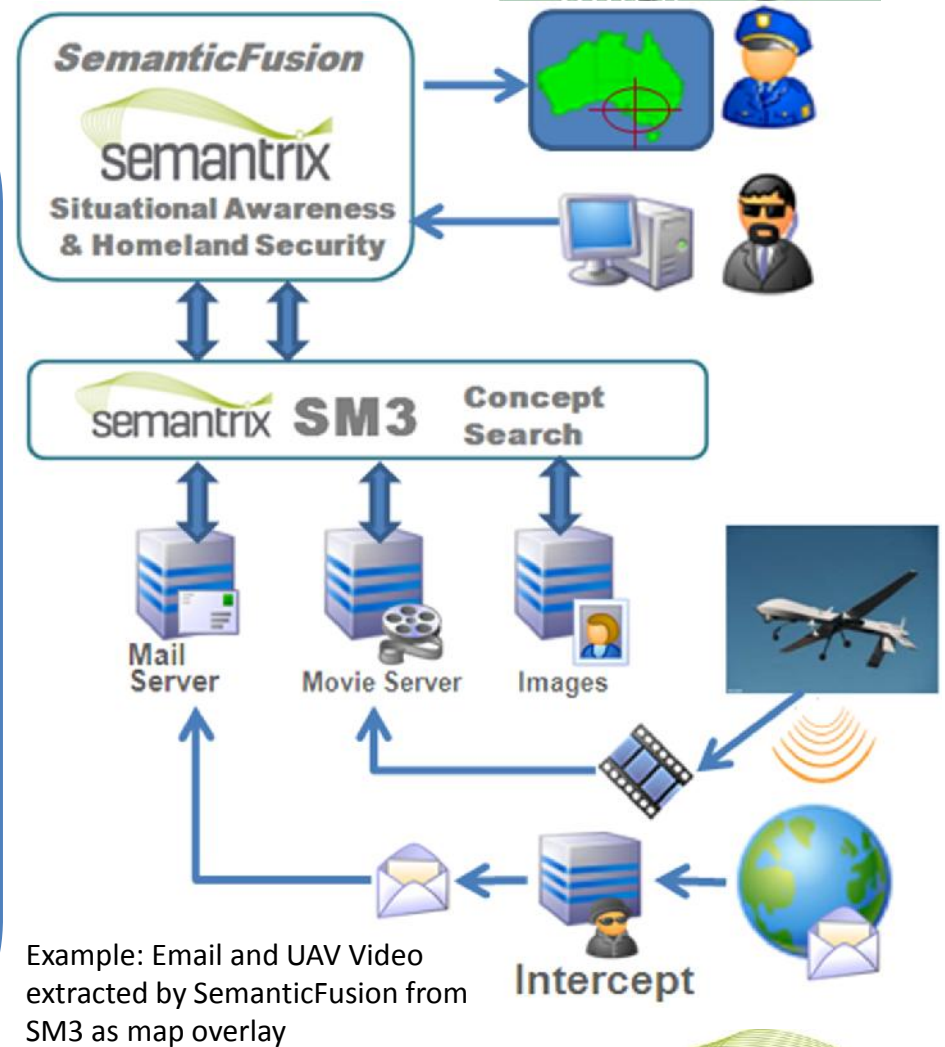
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Semantrix SM3:
In Conclusion SM3 is…

Designed to "front" and enhance commercial VMS & DAMS systems, SM3 provides the "missing link" to build fully integrated UGC systems dealing with multiple content types

Enhances content value by cross-referencing content & metadata using Semantic Web & Domain Ontology models, and NLP, Text Analytics & concept extraction approaches

Enables the next generation of Social Network aware Intelligent Media Recommendation, Conceptual Search, Semantic Advertising, and UGC system integration capabilities

Please visit our website www.Semantrix.com.au or call us on +61 425 739 536 to find out more about our SM3: Social & Multimedia Metadata Manager or SemanticFusion: Situational Awareness & Homeland Security programs

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