EIT ICT Labs Future Media and Content Delivery stds aspects

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Action Line Leader Future Media and Content Delivery
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The European Institute of Innovation & Technology is a reality.
EIT ICT Labs’ mission is to turn Europe into a global leader in ICT Innovation

Breed entrepreneurial ICT top talent via the transformation of higher education to promote creativity and entrepreneurial spirit

Speed up ICT innovation by bringing people together from different countries, disciplines and organizations via mobility programs and Co-location Centres

Generate world-class ICT business via broader and faster valorisation of research results
EIT ICT Labs Strategy
Integrating the Knowledge Triangle

Innovate across Education, Research and Business

- Educate a new generation of business savvy ICT professionals
- Combine Europe’s excellence in ICT to foster world-leading ICT innovations
- Create a business-minded framework for ICT innovations
- Establish a network of world-class co-location centres to foster new ideas

Creating a new breed of entrepreneurs
Enabling excellent individuals and multidisciplinary teams to develop breakthrough ideas

Supporting innovators all the way to the market
**Co-Location Centres**

**European Innovation Hotspots**

- EIT ICT Labs operates from **Co-location Centres (CLCs)** in 5 nodes

- CLCs are **places** where individuals from different types of organisations and cultures **work together face-to-face** and move forward effectively towards KIC goals

- CLCs are equipped with state-of-the-art communication technologies that facilitate **cross-node collaboration**
Strong European Partners
Complete and complementary world-class innovation nodes

Each node features at least:
- One strong research institute
- One major university
- One European-based multinational company

- Active regional network of SME
- Full national and regional support

+ Associate clusters in Budapest, London, Trento

Berlin
- Deutsche Telekom Laboratories
- SIEMENS
- SAP

Eindhoven
- NICT
- PHILIPS
- novay

Helsinki
- Aalto University
- Nokia

Paris
- INRIA
- TELECOM
- INP
- UPMC
- CNRS

Stockholm
- KTH
- ERICSSON
- SICS

+ Academic and industrial clusters
Our Innovation Framework

**Creation**

- **Innovation nucleus**
  - Breed entrepreneurial talent through education
  - Generate knowledge through excellent R&D

**Transition**

- Increase collaboration and effectiveness through physical proximity
- Driving commercialization of R&D results through established companies

**Acceleration**

- Normally includes standards aspects
- Driving commercialization of R&D results through empowering entrepreneurship
- New business creation
- Benchmarking

**Support pillars**

- Personal networks
- Open Innovation
- Innovation culture
- Attractive environment
- Benchmarking
Our Thematic Action Lines bring ICT innovation to specific markets

| **Smart Spaces** | - **intelligent environments** that facilitate everyday practices  
- create **richer user experiences** & enhance the users’ awareness of **local opportunities** in a resource and cost efficient way |
| **Smart Energy Systems** | - increasing **energy efficiency** via ICT enabled **power grids**  
- energy efficient ICT solutions - **green ICT** |
| **Health & Wellbeing** | - Development of ICT enabled services supporting a cost effective sustainable **healthy lifestyle**  
- **ambient assisted living** |
| **Digital Cities of the Future** | - ICT enabled solutions in the areas of **security**, **pollution**, **transportation**, and **resource management** (e.g. water). |
| **Future Media and Content Delivery** | - Development of **powerful** and **open ICT infrastructure**, capable of delivering rich data-intensive media and content storage services, at competitive costs, across administrative domains, ensuring quality of service |
| **Intelligent Transportation Systems** | - **Services** for people using all kinds of **transportation systems** |
Future Media and Content Delivery addresses the challenges of bringing media and content to the consumer.

- **Rich future media to and from any device**
- **Cost effective content delivery**
Major projects 2011

MMSL- Media and Mobile Services Lab
- is covering the technical, user quality of experience, business evaluation and translation to innovation
- The approach includes evaluation test beds of media and mobile services ecosystem

OpenSEM – Open Innovation Platform for Semantic Media
- aims to improve user access to networked multimedia using the triple synergy of content analysis, user created metadata and social network analysis.
- The approach includes organization of summer schools, benchmarking activities and dissemination of various types of results through a web portal.

Network Solutions and Service Assurance for Content Delivery
- The purpose of this activity is to enable and secure media QoE/QoS of content delivery for end-users.
- The focus is on the mobile backhaul and fixed access part of the networks
Future Plans

- **Mobile Media**
  - User-generated content and services integrating with IoT where the mobile acts as a central device.
  - Integrating IoT into social and business media

- **Multimedia Content analysis and Processing (incl. search)**
  - Context and content-aware processing of content
  - Sensor data fusion, multi-modal data analysis, visualisation

- **Smart Content Delivery over heterogeneous networks**
  - New networking paradigms such as information centric networking, media clouds, infrastructure as a service, and transaction oriented communication
  - Novel access networks
Media and Mobile Services Lab

Advertisers

Content Providers

MPM

Cache / encrypt / Transcode / refresh

Personalize the content to deliver & redirect to CDN

Get

Push

Request

MPM: Media Plane management
PluriCast’s technology exploits knowledge about user needs and traffic profiles

Content is loaded to the user’s mobile device when the network conditions are best. This allows

- no delays in data delivery
- lower battery consumption
- less network resources needed to handle peaks
- superior user experience
PluriCast’s products span the Telco ecosystem
Goal

- Accelerate European innovation in the field of semantic access and retrieval of social media and semantic (multimedia) services.

- Bring “fundamental triple synergy research in semantic media” to concrete “semantic media product/service development”.

Semantic Media Services

- Tag enrichment
- Personalization
- Recommendation
- ...
**Event-centric Multimedia content Access Platform (EventMAP)**

- **Demonstrators:**
  1. a web-based semantic multimedia agenda for events associated with the role of Helsinki as the 2012 Design Capital;
  2. an agenda for cultural events aimed to serve tourists in Italy;
  3. an agenda for amateur sport events in the Netherlands.

EventsML–G2 is a standard for conveying event information in a news industry.

TimeML is a specification language for events and temporal expressions in natural language (Time stamping of events, ordering events, reasoning about temporal expressions and the persistence of events).
Vision for the next step in online searching:
Cross Linking Visual Information and Internet Resources using Mobile Networks

Text-based search has matured over the past years.

Camera-phones provide completely new ways to interact with visual data and our world.

Key enabling factor:
Automatic processing and interpretation of visual data
The activity develops applications for context and content-aware multimedia processing

Extending the **variety of inputs for internet searches** to include mobile sensor data (e.g. visual images and user's actions)

Extending the current internet search engines to deliver rich **image and video information** over **mobile networks**

Exploring internet resources to enhance the already large potential for innovations in the field of **sensor-based retrieval of information**

First **results are already being implemented** by **start-up companies**
Technology transfer in progress to implement technology in large companies

**Current partners**
- INRIA
- KTH

**Start-up collaboration**
- Millpix.com
- OculusAI.com
- Moodstocks.com
- Kooaba.com
The technologies developed within “Cross Linking Visual Information and Internet Resources using Mobile Networks” will serve several application areas

### 4D Visual Maps
- Organize Internet imagery in space and time
- Build dynamically updated visual maps

### Understanding Video Content
- Access video content based on visual and textual queries

### Continuously Wearable Camera
- Extract novelty in temporally repeated background
- Enhance visual cognition by cross-linking to internet resources

#### Application potential
- Education
- Tourism
- Construction monitoring
- EADS, Milpix, Kooaba

- On-the-spot instructions
- Education
- Content-aware advertisement
- INA, Aufeminin, Moodstocks

- Health industry (dementia)
- Tourism
- Content-aware advertisement
- OculusAI, Kooaba

- Identification of unusual events
Motivations:

- Future mobile traffic is dominated by data, mobile Internet
- Yet, infrastructure slow to deploy and upgrade
- Delivery with opportunistic contacts [7DS, Haggle, …] can help.
Distributed caching and D2D Commun.

- Same media may be requested by the neighbour nodes after a while.

- P2P (D2D) communication with network coding can significantly increase reliability and reduce bandwidth.

- Network codes designed for distributed storage (Regenerating codes) greatly reduce the communication required to maintain the desired redundancy.

- Random linear network coding can greatly help real-time content delivery.

- While theoretical work has been largely done, more practical simulations and prototypes are left open. They are necessary for studying practical setups.
Network Solutions and Service Assurance for Content Delivery

Goal
Enable and secure media QoE/QoS of content delivery for end-users

Focus
Mobile backhaul and fixed access networks

The main topics covered are within the area of network operation and maintenance, and next generation access networks.
Network Solutions and Service Assurance for Content Delivery

Media QoE, QoS, service assurance and performance monitoring for mobile backhaul and fixed access networks.

Access network management and new access network solutions for content delivery assurance.

Access network operation, maintenance and physical media characterization.

Techno-economical and standardization aspects on next generation access networks.

Active in the SPAC group at BBF

Contributions to G.fast (ITU-T-SG15)
Seamless P2P video streaming for the web

- KTH – Sweden
  - P2P push
    Enabling a P2P community

- TU Delft – Netherlands
  - Reputation
    Keeping track of good peers and free riders

- INRIA – France
  - Privacy
    Protecting users' privacy
A Lonely Place For Dying

From Justin Eugene Evans | Year 2011 | Downloads: 1311815 | Sharing: 48095 | Length: 27m | Creator's site

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PART 1

Download Part 1 (720p, Matroska)  
Download Part 1 (Standard Definition)  
Download Part 1 (Standard Definition, Theob)  
Direct Download & OneCol

Subtitles available at subtitles.com (thanks to Zeham Co) and @subtitles
Standards implication

- Standardisation is part of the commercialisation process
- Many of the projects are planning standardisation activities
- Open Source SW often part of deliverables
- Generally low level of knowledge how SDO work
- Possibility to apply lightweight approach
ICT labs FMCD

- Information re opportunities for standardization
- Contacts with ETSI as start
- Other potential bodies later
Thank you! Questions?

EIT ICT Labs

Knowledge & Innovation Community