Internet of Services, Software and Virtualisation

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SEVENTH FRAMEWORK PROGRAMME

Software and Services

- A key industrial sector
  - 1 Mio specialists in EU
  - 200 B€ market (70 B€ Software)
  - EU ICT market growth mainly driven by software and IT services (EITO '06): 5.8% for 2006-07

- The engine room of the Information Society
  - Our society depends more and more on software
  - Important EU industry sectors depend on S&S
  - 70% of software development takes place in non-software companies

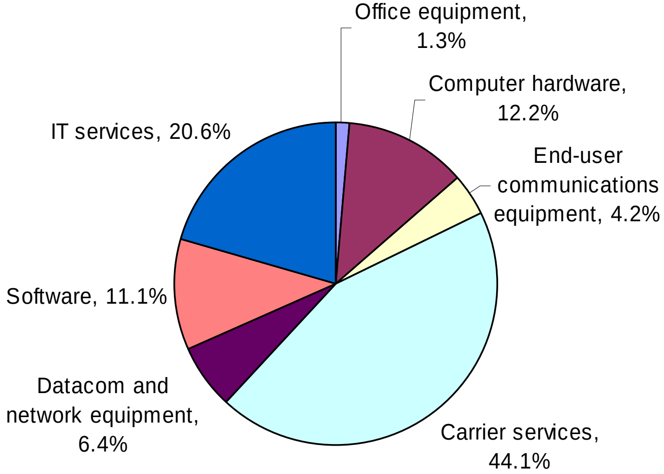



Software & Services
Some Trends

- From software to services
  - eServices, Software as a Service, SOA
  - Resource as a Service, Cloud computing, Need for more flexibility and reduction of TCO in ICT infrastructures
  - *Everything as a Service*
- *Convergence* of IT, Telecom and Media
  From the computer to the Web
- Open innovation & collaborative development
- Competition from newly industrialized countries

Software & Services Industry and Markets

Europe is world's largest ICT market



Source: EITO, 2007

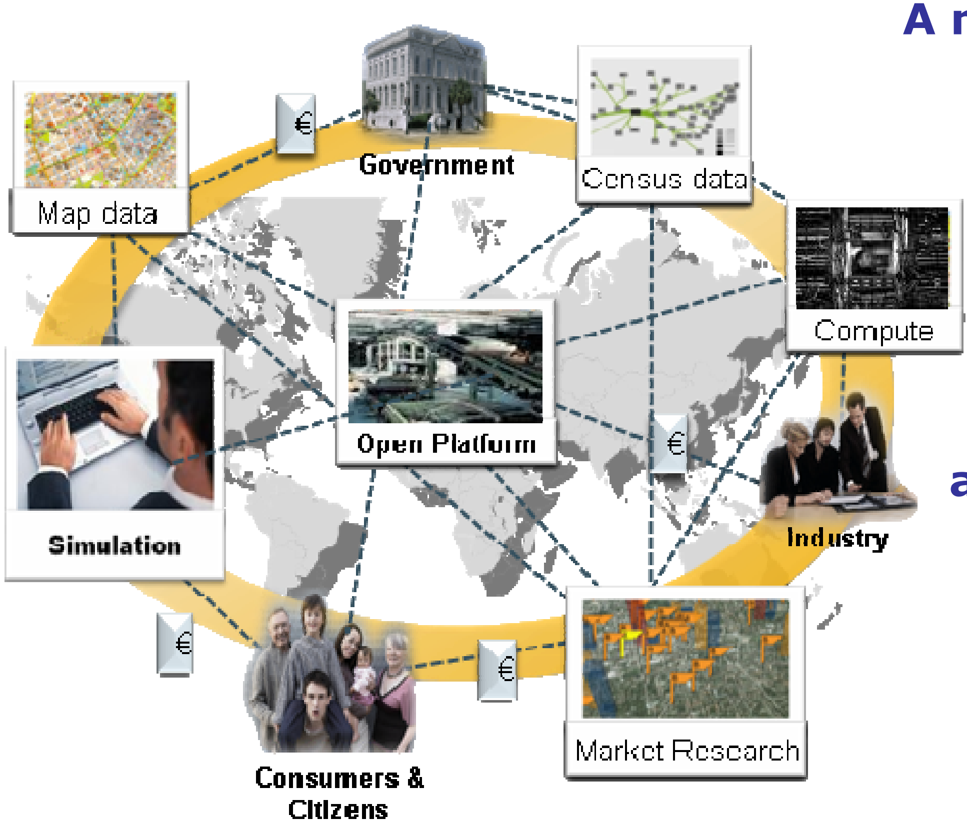
Rank	Company	Nat.	Software revenue in Europe (M €)
1	Microsoft	US	9,355
2	IBM	US	4,200
3	SAP	DE	3,807
4	Oracle	US	2,889
5	Symantec	US	1,270
9	SAGE	UK	715
13	Dassault Syst	FR	469
18	Logica	UK	297
25	Software AG	DE	192

Source: EuroSoftware 100 - Key players and market trends 2008, PwC

BUT for software and services:

- US companies dominate market
- China and India are emerging

Internet of Services Vision



A multitude of connected IT services, which are offered, bought, sold, used, repurposed, and composed by a worldwide network of service providers, consumers, aggregators, and brokers

- resulting in -

a new way of offering, using, and organising IT supported functionality

Number of Web services found by SEEKDA crawler during the past 25 months

SEVENTH FRAMEWORK PROGRAMME

Adapted from SAP Research, 2008, and SEEKDA, 2008

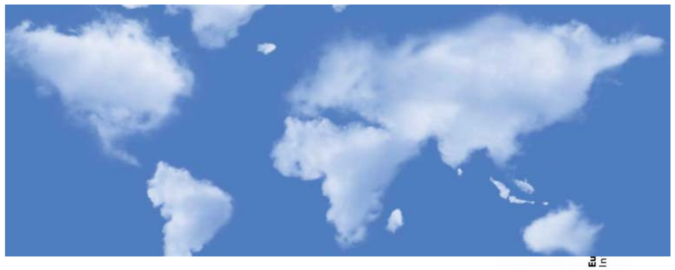
Virtualised Infrastructures
e.g. Cloud Computing

- An emerging computing paradigm where data and services reside in massively scalable data centers and can be ubiquitously accessed from any connected device over the Internet[1]

	Traditional Computing		Cloud Computing
Acquisition Model	Buy assets and build technical architecture	→	Buy service (aka "rent")
Business Model	Pay for fixed assets and administrative overhead	→	Pay based on use
Access Model	Over internal network, to corporate desktop	→	Over the Internet, to any device
Technical Model	Single tenant, nonshared, static (often not shared)	→	Scalable, elastic, dynamic, multitenant

Source: Gartner (September 2008)

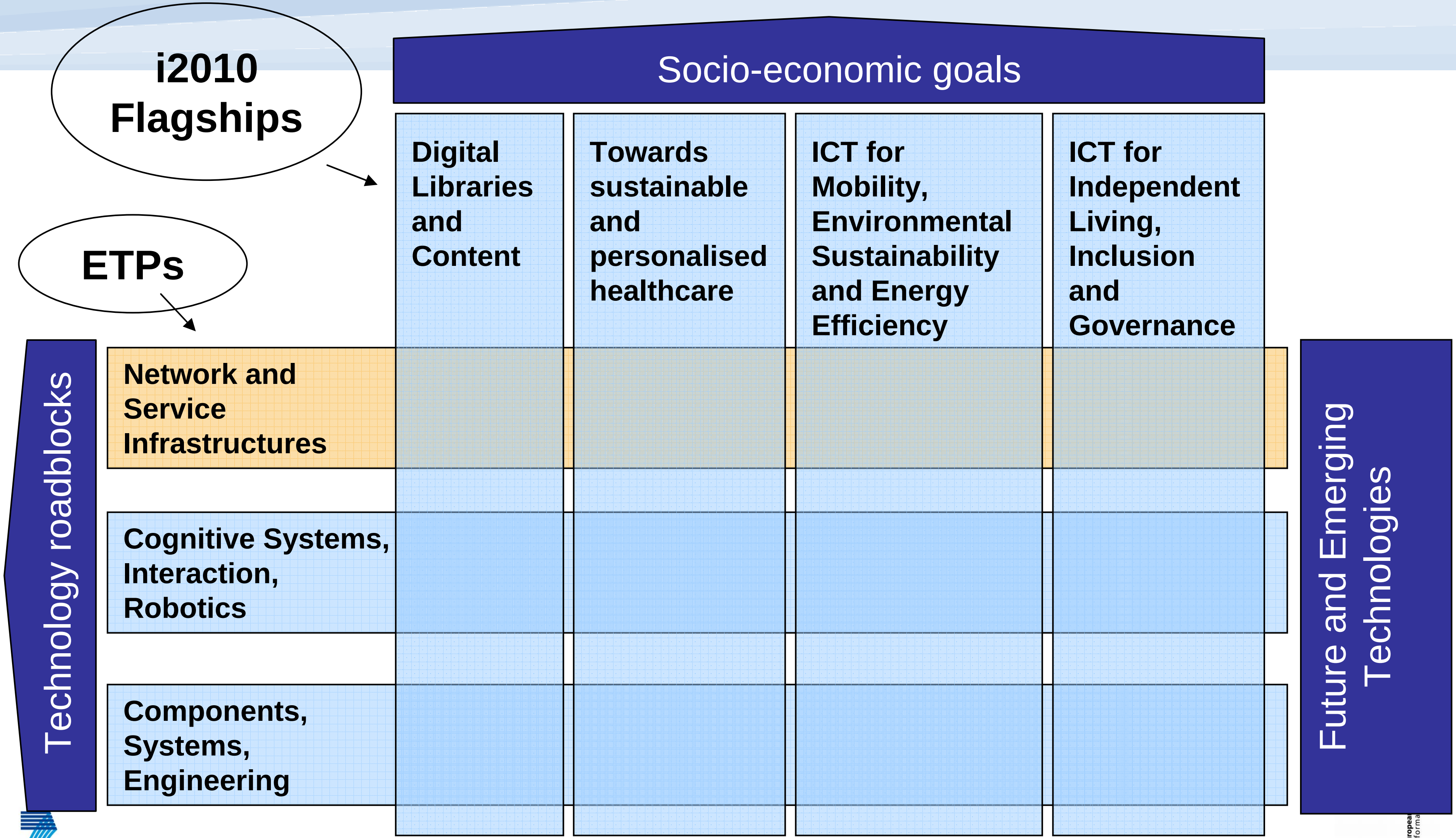
Merrill Lynch:
Cloud computing market opportunity by 2011 = $95bn in business and productivity apps + $65bn in online advertising = $160bn



(1) Source: IBM

ICT Work Programme 2009-2010

~2 B€ total



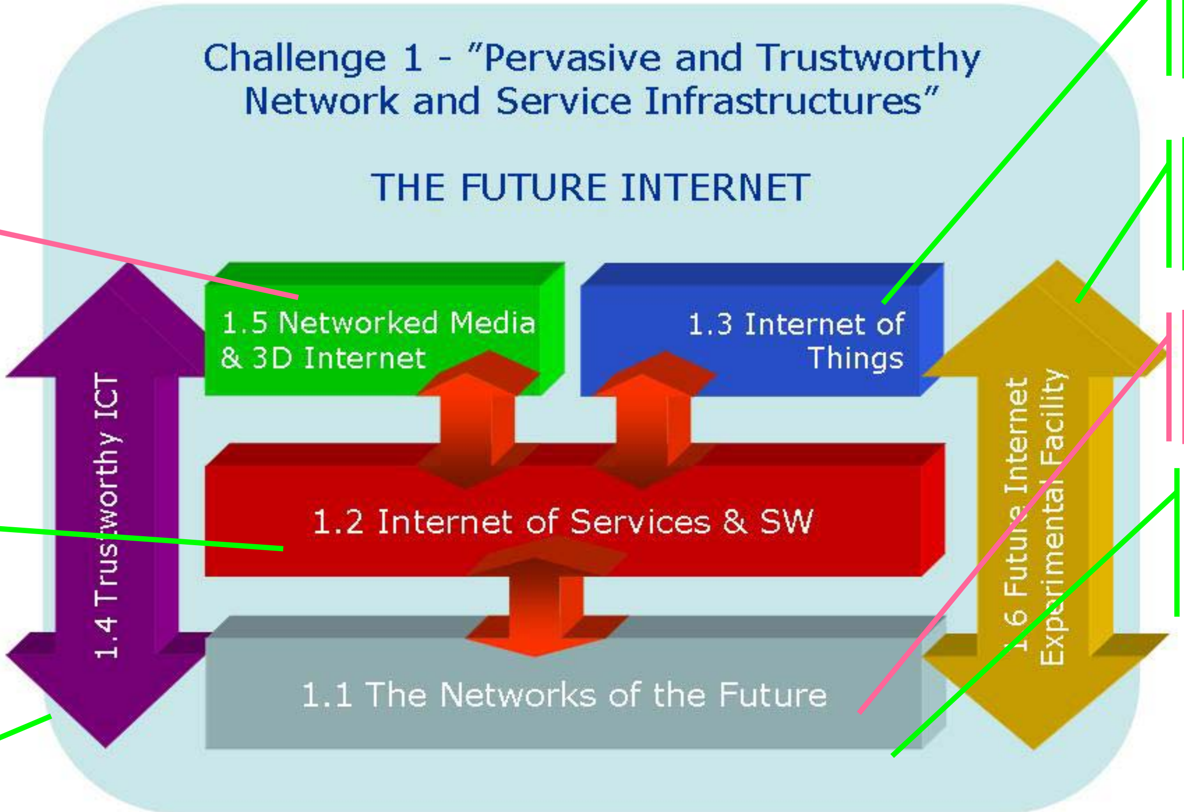
Challenge 1, Future Internet: Why?

- The Internet is going mobile
- The Internet is going (ultra) broadband
- Novel Media classes of applications be supported (e.g. 3D)
- Device/object/machine connectivity - towards an Internet of Things
- Huge number of on-line – user controlled - dynamic services open the door to an Internet of Services
- Security, Trust, Identity raising novel classes of issues
- Internet manageability and scalability are limited

"As novel and unforeseen usages are pushing the original Internet architecture to its limits, a fresh technological and architectural approach is needed."

Challenge 1 "Pervasive and Trustworthy Network and Service Infrastructures"

Call 4: 19 Nov – 1 April 2009 = 190 MEuro
Call 5: 30 July – 3 Nov 2009 = 367 MEuro



Call 4
80 MEuro (1.5 Networked Media & 3D Internet)

Call 5
110 MEuro (1.2 Internet of Services & SW)

Call 5
90 MEuro (1.4 Trustworthy ICT)

Call 5
37 MEuro (1.3 Internet of Things)

Call 5
50 MEuro (1.6 Future Internet Experimental Facility)

Call 4
110 MEuro (1.1 The Networks of the Future)

Call 5
80 MEuro (1.1 The Networks of the Future)

ICT Work Programme 2009

Objective ICT-2009.1.2: Internet of Services, Software and Virtualisation

Target outcomes

a) Service Architectures and Platforms for the Future Internet
   - Service front ends
   - Open, scalable, dependable service platforms, architectures, and specific platform components
   - Virtualised infrastructures

b) Highly Innovative Service / Software Engineering
   - Service / Software engineering methods and tools
   - Verification and validation methods, tools and techniques
   - Methods, tools and approaches specifically supporting the development, deployment and evolution of open source software

c) Coordination and support actions

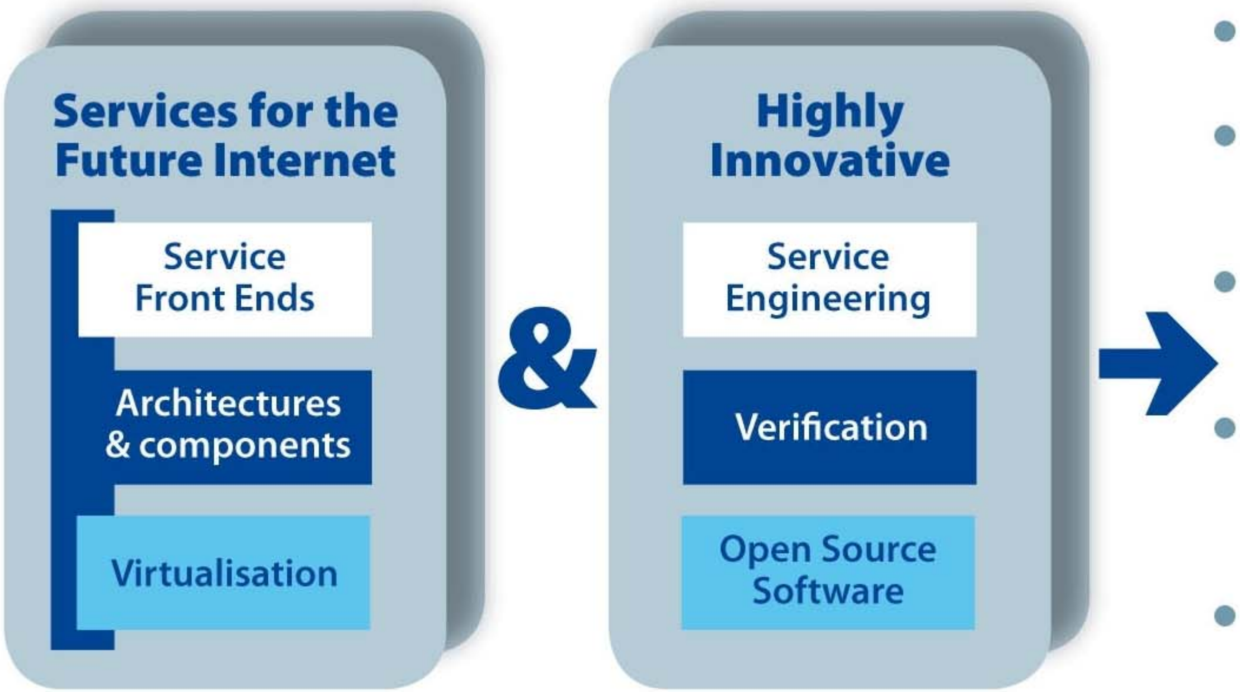
Expected Impact

- A major contribution to the Future Internet
- Deep technological advances in software/service engineering
- Lowered barriers for service providers, in particular SMEs, to develop services
- Massive uptake of high-added value services
- A strengthened industry in Europe for software, software services and Web services

Remember: The Workprogramme text is the official reference for the call

Objective 1.2: Internet of Services, Software and Virtualisation

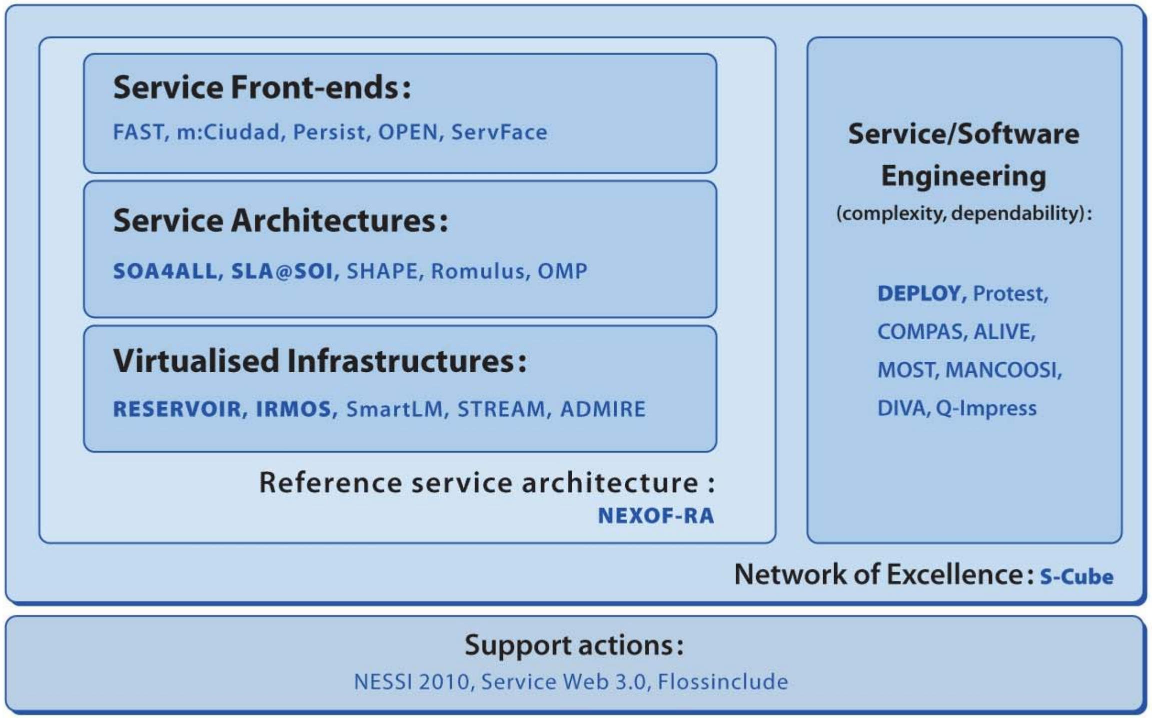
Target Outcomes



Expected Impact

- Contribution to Future Internet / Convergence
- Technological advances in software/service engineering
- More competitive environment for service providers, including SMEs
- Massive uptake of high-added value services. Service Front-ends, online communities
- Strengthened European software and services industry

Current FP7 projects under Objective 1.2



* IP/NoEs in bold

- 181 M€ invested, 120 M€ EC contribution
- Timeframe 2008-2011

http://cordis.europa.eu/fp7/ict/ssai/projects_en.html

Timetable

- Publication WP2009-10 in November 2008
- FP7-ICT Proposers' Day 2009
  - 22 January 2009, Budapest, Hungary
- Objective 1.2 Information Day
  - 9 June 2009, Brussels
- Call 5
  - Publication: 30 July 2009
  - Submission deadline: 3 November 2009

http://cordis.europa.eu/fp7/ict/ssai/events_en.html

The Take Away

- Prepare for Future Internet and convergence
  - Update research lines
  - Involve other players
- Beyond state-of-the-art
  - Target specific, long term innovation
  - Increase horizon
  - Pursue specific outcomes
  - Ensure contribution to expected impact
- Know ongoing/former projects and initiatives

For more information

FP7
http://cordis.europa.eu/fp7/
http://cordis.europa.eu/fp7/ict/

Software & Service Architectures and Infrastructures
http://cordis.europa.eu/software-services

Future Internet
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