



Brussels, September 19, 2008

FIA MADRID – SUGGESTIONS FOR ORGANISATION OF THE SESSIONS

Status of this document: FIA distribution and discussion.

1. PURPOSE OF THE SESSIONS

What. The aim of the Madrid technical workshop is to discuss cross-cutting issues of common interest. The expected outcome would be position statements. In practice, such paper would be maximum 2 pages describing the state of play, research orientations and possible integration paths towards the future internet, accompanied by a roadmap with milestones, to be supported by the attendees.

How. The mixing of communities should be reflected in the structure of the proposed topics of the sessions and where possible avoid parallel sessions that would attract significant attendance from each other. It must be realised however that this cannot be fully realised in the chosen session structure.

Who. There is a need for the communities to feel ownership of the sessions. Within each session, the suggested group of proposers (including the relevant "Bled caretakers") needs to reflect upon who the drivers could be and accommodate a preparation process. Ideally, this group would ensure preparation of a document that could form the basis of the final session statement..

To avoid. Naming the session according to the Commission funding structure, instead of real cross-cutting issues.

2. TIMETABLE FOR ACTION

An email should be sent as soon as possible informing:

- the FIA steering committee and the persons who suggested a session

about the proposed structure for the session, inviting them to structure their contribution in this set up, and participate in the preparation for it.

The September 15 meeting of the steering committee is the next event, where decisions will have to be taken on what/who/how.

3. FORMAT OF THE EVENT

The Madrid event takes place on December 9 (9.00-18.30) and 10 (until 13.00), 2008 in Madrid.

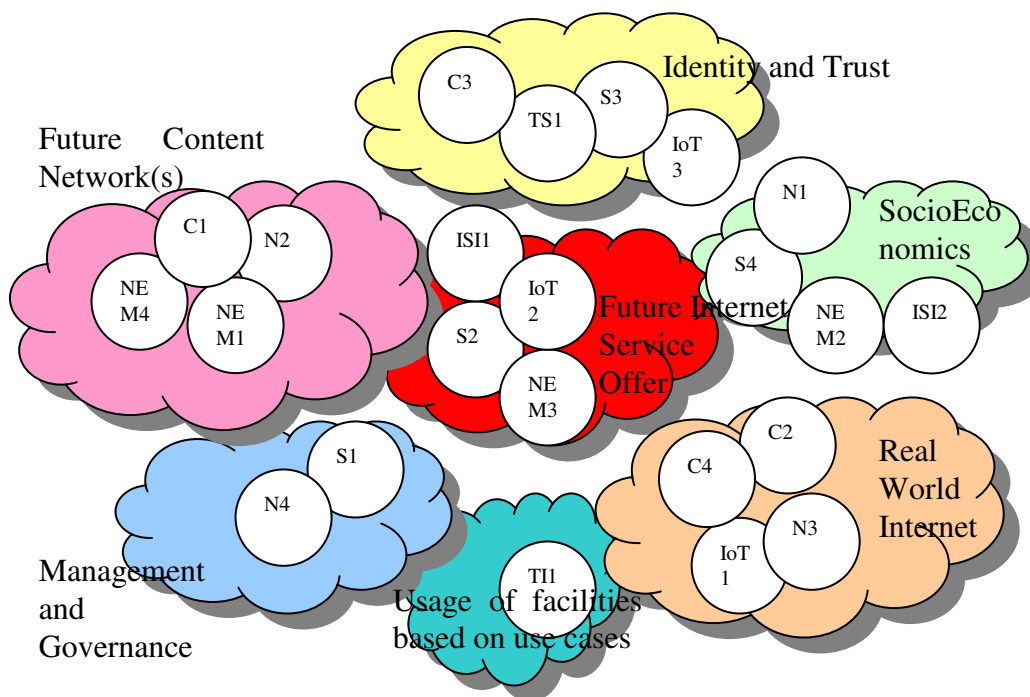
Dec 9 morning (agreed not to last more than 1.5hour) is supposed to be presentations of general interests, including national initiatives.

Dec 10 morning should contain a wrap-up session in order to properly take stock of the achievements and have the proper mourning of the meeting.

This would leave mainly 6 hours in Dec 9 (11.00-18.30) and 2 hours in Dec 10 morning (9.00 – 11.00). This would suggest to organise slots of 2 hours (roughly around 11.00-13.00, 14.00-16.00, 16.30-18.30, 9.00-11.00).

4. SUGGESTIONS FOR SESSIONS

23 proposals received, see Annex 1.



4.1. Future Content Network(s)

The session is composed of similar proposals dealing with content, content networks, media aware networks, ... This obviously regroupes N2 (future content networks), NEM1 (vision towards future media internet), C1 (media driven networks) and NEM4 (multimedia content delivery).

To be noted that the proposals intend to sketch proper content (or content-aware) architecture(s).

On the basis of a background document from the *usage of facilities based on use cases* session documenting scenarios for each of the domains, participants

in this session are encouraged to dedicate time to explore further scenarios for the use of facilities, to be eventually captured and summarised in a dedicated session.

Keywords: 3D internet; virtual reality; Search; content-awareness

Before/After/Not concomitant with: not concomitant with the future internet service offer, in order to allow the exchange between both communities.

Suggestions for improvement: -

4.2. Real World Internet

The session could be composed of several proposals dealing with the interfaces between real and virtual worlds. This regroups obviously C4 (cognitive and visual sensor networks), IoT1 (communicating things) and N3 (real world internet).

For this session, proposals intend to sketch proper real-world internet architecture(s).

On the basis of a background document from the *usage of facilities based on use cases* session documenting scenarios for each of the domains, participants in this session are encouraged to dedicate time to explore further scenarios for the use of facilities, to be eventually captured and summarised in a dedicated session.

Keywords: sensor networks, scalability, cognition

Before/After/Not concomitant with: -

Suggestions for improvement: -

4.3. Identity and Trust in the Future Internet

The session on trust would take on board the proposals TS1 (scalable trust for an open future internet), S3 (trust at scale –mentioned as potential cluster with TS1) and IoT3 (trust at scale, privacy). The session should take on different streams as it obviously cuts across network, services, content, ... The session C3 (identity management for users and content) would fit better here.

The session would be best split into two streams:

- a first stream addressing the overall identity issues and design for identity frameworks (virtual identity attributes, identification systems, civil identity systems with strong needs, credential management systems, etc).
- a second stream addressing Trust issues.

On the basis of a background document from the *usage of facilities based on use cases* session documenting scenarios for each of the domains, participants in this session are encouraged to dedicate time to explore further scenarios for

the use of facilities, to be eventually captured and summarised in a dedicated session.

Keywords: trust, transparency, accountability, enforcement, privacy, identity management, legal/business/economic requirements of trust.

Before/After/Not concomitant with: -

Suggestions for improvement: would require a more comprehensive participation from all groups.

4.4. Future Internet Service Offer

The session: S2 proposes an architecture for the Future Internet Service Offer and Applications. The ISI1 proposal (emergency internet) could be part of this session on the basis of the requirements for services.

IoT2 (personalised services and content) and NEM3 (user generated content) would also fit the description of an internet service offer.

The proposals intend to sketch requirements and needs from the architecture to properly offer services.

On the basis of a background document from the *usage of facilities based on use cases* session documenting scenarios for each of the domains, participants in this session are encouraged to dedicate time to explore further scenarios for the use of facilities, to be eventually captured and summarised in a dedicated session.

Keywords: personalisation, context-awareness

Before/After/Not concomitant with: ideally, after the discussion on future content network(s) and real world internet, as both sessions would have architecture designs and constraints useful for this session.

Suggestions for improvement: -

4.5. Management and Governance

The session: S1 (management and governance within FI) + N4 (self management). This is a big driver currently for network management as well for services management and content management as a means to reduce OPEX.

Keywords: virtualization, self-management, optimisation, cooperation among autonomic systems or components

Before/After/Not concomitant with: -

Suggestions for improvement: -

4.6. SocioEconomics

The session on socioeconomics drives on proposal N1 (FI socioeconomics). The economics in this session tackles the question of who pays, along with consideration for costs, pricing, benefits, etc. It could also include NEM2 (content) for the social aspects of content production as described in NEM2. Following their request, the proposal S4 (lifecycle engineering) would fit better in the socioeconomics.

The ISI2 proposal (the mankind internet) strives on the social needs and should be linked to this session.

This session also cuts across all domains.

Keywords: social needs, economics, business models, pricing

Before/After/Not concomitant with: not concomitant with the identity and trust session, as they both deal with identity concepts, although dissimilar.

Suggestions for improvement: security economics described only touches upon privacy (user-side economics) and not on the business models of the providers (supply side, even more general demand side). As it touches upon the economics of privacy, the session would be best located after the identity and trust session.

4.7. Usage of facilities based on use cases

The session deals with test facilities, and is composed of TII. It drives on the requirements of all domains in order to provide the facilities needed to have large-scale testing.

Keywords: test infrastructures, test requirements

Before/After/Not concomitant with: after the domain discussions (in order to wrap up on previous discussions)

Suggestions for improvement: Test infrastructures as a methodology to perform R&D should be elaborated in more detail.

5. SUGGESTION OF SESSION PLANNING

December 9, 2008

9.00 – 10.30	Plenary introductory session (Welcome, status and way forward, national initiatives)		
11.00-13.00	Future Content Network(s) (1) N2, C1, NEM1, NEM4	Management & Governance (1) S1, N4	Identity and Trust in FI (1: identity) TS1, S3, IoT3, C3
14.00-16.00	Future Content Network(s) (2) N2, C1, NEM1, NEM4	Management & Governance (2) S1, N4	Identity and Trust in FI (2: trust) TS1, S3, IoT3, C3
16.30-18.30	Future Internet Service Offer (1) S2, IoT2, ISI1, NEM3	Real World Internet (1) N3, IoT1, C2, C4	Socio-Economics N1, S4, ISI2, NEM2
19.00-22.00			

December 10, 2008

9.00-11.00	Future Internet Service Offer (2) S2, IoT2, ISI1, NEM3	Real World Internet (2) N3, IoT1, C2, C4	Usage of Facilities based on Use Cases T11
11.30 – 13.00	Plenary session (achievements, session papers, way forward)		

ANNEX 1. SESSIONS PROPOSED.

Trust & Security	Network	Services	Content	IoT	TI	NEM	ISI
TS1 (scalable trust for an open FI)	N2 (future content networks)	S1 (management and governance within FI)	C1 (media driven networks)	IoT1 (communicating things)	TI1 (use scenarios for the FIRE facility)	NEM1 (vision towards future media internet)	ISI1 (the emergency internet)
	N1 (FI socioeconomics)	S2 (architectures and infrastructures)	C2 (physical-based virtual worlds)	IoT2 (personalised services and content)		NEM2 (content)	ISI2 (the mankind internet)
	N3 (real world internet)	S3 (trust at scale and high granularity)	C3 (identity mgmt for both users and content)	IoT3 (trust at scale and high granularity)		NEM3 (user-generated content)	
	N4 (self management)	S4 (lifecycle engineering for FI apps)	C4 (cognitive and visual sensor networks)			NEM4 (multimedia content delivery)	

Descriptions of suggested sessions

Owner	Description	Comments
TS1 Zeta Dooly (think trust) Security	Scalable Trust for an open Future Internet Billions of global users, networks, services, data, and virtual entities have adopted the Internet as a primary mode of communication. A common theme of Trust emerged as a Grand Challenge in Bled in April 2008 across all domains: Future Networks, Service Infrastructures, Networked Media systems, Internet of Things, Experimental Test facilities. During Bled, it was agreed that Trust cannot be	

	<p>built in isolation or rely on technologies of one layer only. Trust must be maintained, monitored – whether created, obtained, assessed, measured or perceived – taking into account all information available. This highlights the need for convergence in cross domain challenges.</p> <p>Trust on the Internet reflects an end-to-end, context-dependent relationship between two or more entities enabled by intermediaries (networks, devices, services, applications).</p> <p>The proposed session aims to create a common understanding of what trust means, including technological, legal, business and social implications. It will bring together key experts from different fields and working at different layers to integrate their perspectives and debate their concerns. Principles of trust attribution schemes based on transparency and accountability and underlying issues like policy-aware trust architectures and assessment schemes, including identity management, will be discussed along with economics and usability balancing technologies to develop a trust framework that will support the Future Internet. For more details, see Appendix.</p> <p>Duration: 4 hours</p>	
<p>N2</p> <p>Network</p> <p>Norbert Niebert (4WARD), Carmen Guerrero (CONTENT)</p>	<p>Future Content Networks</p> <p>A Future Internet will be driven by new demands. Content delivery is one area where the Internet of today has proven its transport capability but not shown that it could deal with content in any sensible way (mounting problems like SPAM, inefficient overlays, unauthorized usage, etc.). Which network supported content distribution and management mechanism would lead to a win-win situation and what are the impacts (on user-ISP contractual agreements, social contract between public-private sphere, etc.)? A Future Content Aware Internet has to offer benefits to both content owners (commercial as well as user provided content), network operators and content users. Such network capability, provided in a reliable and cost-effective manner, would directly contribute to the competitiveness of the European economy.</p> <p>Duration of the parallel session: ~2.5 hours</p> <p>Other domains required to participate and how:</p> <ul style="list-style-type: none"> - Security, Privacy, and Trust: Embedded mechanisms will be required that enable the advanced network functionality. These require proper identity management, encryption and 	

	<p>filtering techniques among other from this area.</p> <p>- Content: The more media related projects usually demand too little from the networking infrastructure with respect to content delivery support. This may lead to scattered and inflexible solution especially w.r.t. wireless and mobile resource usage optimization.</p> <p>Some possible endorsement/support from other domains: NEM, eMobility</p> <p>This session should be done jointly with the task force Future Media and 3D Internet which has a subgroup on media aware networks</p> <p>Projects involved: CONTENT, 4WARD, EIFFEL, CHIANTI, E3, ...</p> <p>Duration of the session:</p> <ol style="list-style-type: none"> 1. Overview of other EU funded work in the area (involved projects) (5 * 15 min talks + discussion) 2. Panel on a Future Content Network “The mediation and involvement expected from the Future Internet infrastructure vs. end-systems/host in delivery and management of content” (45 min) 3. Initial proposal for a research programme / white paper contents (30 min) 	
<p>N1</p> <p>Network</p> <p>Pekka Nikander (PSIRP), David Hausheer (Smooth IT)</p>	<p>Future Internet Socio-Economics (FISE)</p> <p>In general, the field of socio-economics aims to understand the interplay between the society, economy, markets, institutions, self-interest, and moral commitments. It is a multi-disciplinary field using methods from economics, psychology, sociology, history, and even anthropology. Socio-economics of networks have been studied for over 30 years (Bradley, Wellman, ...). The aim of this activity is to educate the European Future Internet community about the existing research results. It is hoped that the activity will lead to new insights on how to structure the architecture and services in the Future Internet.</p> <p>Projects involved: SmoothIT, PSIRP, 4WARD, Euro-NF, EFIPSANS (networks), SOA4ALL (services)</p> <p>Duration of the session: ~2..2.5 hours (3 * 20 min talks + discussion)</p> <ol style="list-style-type: none"> 1. Overview of other EU funded work in the area (SOCIALNETS (FET), PARADISO (Experimental Facilities), CitizenMedia (Content), ...) 2. Understanding the systemic nature of socio-economics (???) 	

	<p>3. Initial proposal for a research programme / white paper contents</p> <p>Other domains required, and why?</p> <ul style="list-style-type: none"> - Security, Privacy, and Trust: These concepts are intrinsically related to the socio-economic aspects, e.g. through the privacy aspects of price differentiation (cf. Odlysko 2004) or how certain types of trust are strongly influenced by the democratic economic order (cf. Särelä & Nikander 2008) - Services and Software: It looks like that especially the services people would benefit from a better, more structured understanding of their value proposition; this applies especially to the concepts of overlay services as two-faced markets etc. As for content *creation* and media *delivery*, perhaps there are aspects related to provider and distributor business models and their effects on the society in the larger scale. <p>References: Privacy, economics, and price discrimination on the Internet, A. M. Odlysko. ICEC2003: Fifth International Conference on Electronic Commerce, N. Sadeh, ed., ACM, 2003, pp. 355-366. Reprinted on pp. 187-211 of Economics of Information Security, L. Jean Camp and S. Lewis, eds., Kluwer, 2004. Also reprinted on pp. 39-61 of The Icfaiian Journal of Management Research, vol. 3, no. 12, December 2004 Särelä and Nikander. Social Aspects of Trust in the Internet: Issues and Incentives. In the proceedings of 7th Conference of Telecom, internet and media Techno-Economics, CTTE 2008, Paris, 18 June 2008.</p>	
<p>N3 Network</p>	<p>Real World Internet</p> <p>The increasingly growing importance of enabling interactions with the real world and making its information accessible to services on the Internet, human users and machines alike, will lead to a situation where sensor and actuator nodes will account for the majority of connected nodes in a Future Internet environment. These nodes, forming the Real World part of the Internet, will undeniably have a huge impact on the required mechanisms and architecture of the Future Internet as their numbers will be orders of magnitudes higher than the ones currently connected; consequently increasing the amount of information that should be searchable and accessible via the Internet.</p> <p>This cross-domain topic addresses aspects covered in wireless communications, networking, security, service platforms, service creation environments and content, addressing in one system, wireless sensor and actuator networks, the internet and services and applications.</p>	

Projects involved:

- SENSEI (<http://www.sensei-project.eu/>),
- o Mirko Presser (m.presser@surrey.ac.uk)
- o Stephan Haller (stephan.haller@sap.com)
- o Laurent Herault (laurent.herault@cea.fr)
- o Fabrice Forest (fabrice.forest@umanlab.eu)
- 4WARD (<http://www.4ward-project.eu/>),
- o Henrik Abramowicz (henrik.abramowicz@ericsson.com)
- C-CAST (<http://www.ist-ccast.eu/>),
- o Telma Mota (telma@ptinovacao.pt)
- EuroNF (<http://euronf.enst.fr/>),
- o Daniel Kofman (daniel.kofman@telecom-paristech.fr)
- PROSENSE (<http://www.prosense-project.eu/>),
- o Srdjan Krco (srdjan.krco@ericsson.com)

Projects with potential interest:

- InterMedia (<http://intermedia.miralab.unige.ch/>)
- ECRYPT II (<http://www.ecrypt.eu.org/>),
- o Ingrid Verbauwhede (Ingrid.Verbauwhede@esat.kuleuven.be)
- PSIRP (<http://psirp.org/>),
- o Sasu Tarkoma (sasu.tarkoma@nokia.com)
- ASPIRE (<http://www.fp7-aspire.eu/>),
- o Michel Cezon (michel.cezon@inria.fr)
- FAST (<http://fast.morfeo-project.eu/>)
- SOA4ALL (<http://www.soa4all.org/>)
- SENDORA (<http://www.sendora.eu/>)
- OneLab2 (<http://www.one-lab-2.org/>)

Duration of the session: ~2 hours

1. Overview of other EU funded work in the area (involved projects) (~4 * 5 min talks + discussion)
3. Initial proposal for a research programme / white paper contents (40

	<p>min)</p> <p>2. Panel on WS&ANs in the Future Internet (60 min)</p> <p>Other domains required, and why?</p> <ul style="list-style-type: none"> - Security, Privacy, and Trust: These topics are of utmost importance in practically any system in use today and even more in such a large distributed system that provides a link to the real-world. Ensuring integrity of information, protecting the source of information and establishing the trust and using the trustworthy sensors and actuators only are some of the key challenges that have to be addressed with specialists in this domain. - Internet of Services: sensors and actuators are providing information about or are influencing the physical environment. In both cases, from the user point of view these actions are seen as atomic services that can be combined together and potentially with other Internet services to provide more complex services of interest to the end users. - Internet of Things: This domain is currently focusing on RFID aspects, but in the near future (call 2) we will most likely see more R&D projects on WS&AN. In any case, the RFID dimension is of great importance to be included in the Real World Internet as well as innovations in reliable low power networking and context gathering. - FIRE: The real-world Internet is posing many challenges and it is of crucial importance to verify the new architecture and design solutions in a real environment, in particular from the scalability, interoperability of heterogeneous devices, networks and services as well as management point of view. <p>Some possible endorsement/support from other domains:</p> <ul style="list-style-type: none"> - eMobility expert group addressing WS&AN and context <p>Pending:</p> <ul style="list-style-type: none"> - NEM, NESSI 	
<p>N4</p> <p>Network</p> <p>Hans van den Berg (SOCRA TES),</p>	<p>Self-Management</p> <p>With self-managing components, several requirements for the Future Internet can be satisfied. Self-healing functions can improve resilience, Self-configuration reduces operational cost, increases scalability and helps dealing with highly dynamic changes, for example with mobile networks.</p>	

<p>Juergen Quittek (4WARD), Alex Galis (RESERVOIR, AUTOI)</p>	<p>The Future Internet will be composed of autonomic components with each of them containing functions to manage themselves according to operator-set high-level policies.</p> <p>Duration of the parallel session: ~2.5 hours</p> <p>Other domains required to participate and how:</p> <ul style="list-style-type: none"> - Services and Software: The self-management paradigm does apply to service management as well as to network management. Some of its advantages can be better exploited if both networks and services are managed autonomically. - Security, Privacy, and Trust: Self-managed systems need to exchange status information and coordinate actions. This requires the need for trusted relationships <p>Some possible endorsement/support from other domains:</p> <p>Projects involved: AUTO-I, EFIPSANS, EURO-NGI, 4WARD, SOCRATES, RESERVOIR</p> <p>Duration of the session:</p> <ol style="list-style-type: none"> 1. Overview of other EU funded work in the area (involved projects) (6 * 10 min talks + discussion) 2. Panel on Self-Management in the Future Internet: “Can we create fully self-managed networks in incremental steps or would this need a clean slate approach?” (45 min) 3. Initial proposal for a research programme / white paper contents (30 min) 	
<p>S1 Services Alex Galis</p>	<p>Management and Governance within the Future Internet</p> <ul style="list-style-type: none"> • Management of Ubiquitous Virtual Resources - including the integrated and flexible usage of heterogeneous and assumable virtual resources for energy, networking, computation, storage, content, mobility, etc. • Cross-domain Self Management functions and cross-layer cooperative Future Internet systems design providing integrated management functionality, including: system lifecycles, monitoring, (re)configuration, optimisation, organisation, performance, adaptation, context, semantics, security, composition, assurance, negotiation, repository, SLA, QoS, billing, functions-management; minimising life-cycle Future Internet system costs, minimising the energy 	

	<p>footprint</p> <ul style="list-style-type: none"> • Embedding management functionality in all Future Internet systems (i.e. InNetworks management, InServices management, InContent management) • Dynamic deployment of (new)management functionality with no interruption of Future Internet systems' and services' operation (i.e. Plug-and-Play, UnPlug-and-Play, programmability) • Orchestration and integration of management functionalities <p>Duration of the parallel session: 2.5 hours</p> <p>Other domains required to participate and how</p> <p>Networks, Content</p> <p>Possible endorsement/support from other domains</p> <p>Networks</p> <p>More information: http://services.future-internet.eu/index.php/Management and governance</p>	
<p>S2</p> <p>Services</p> <p>Stefano de Panfilis and Mike Papazoglou</p>	<p>Architectures and infrastructures</p> <p>Identify architectural and infrastructural concerns that will make the Future Internet a reality. The main issues covered would include: network layer versus services layers; mobility; dynamicity; security; awareness of user context; relationship to business value chains and socio-economic aspects.</p> <p>Duration of the parallel session: 90 minutes</p> <p>Other domains required to participate and how:</p> <p>Networks</p> <p>More information: http://services.future-internet.eu/index.php/Architectures and infrastructures</p>	
<p>S3</p> <p>Services</p> <p>Nick Wainwright and Neil</p>	<p>Trust at scale and high granularity</p> <p>Security management frameworks taking into account current research in Mobile Ad-Hoc Networks (MANET), planetary scale computing efforts, trusted virtualization which facilitate the creation of appliance networks which largely automate the deployment and auditing life cycles of both hardware and software according to well specified</p>	

Dunbar	<p>policy requirements, which operate across the differing domains of personal, business and governmental computing sectors.</p> <p>Duration of the parallel session: 60-90 Minutes</p> <p>Other domains required to participate and how: Security</p> <p>Possible endorsement/support from other domains</p> <p>We are discussing with the Security WG to embed this session within a longer Security and Trust session. Our contact on this is Zeta Dooly who's a member of this working group.</p> <p>More information: http://services.future-internet.eu/index.php/Trust at scale and high granularity</p>	
<p>S4</p> <p>Services</p> <p>Mike Boniface</p>	<p>Lifecycle engineering for Future Internet Applications</p> <p>Considering the challenges that exist when we look at the interplay between content engineering, service engineering and network engineering lifecycles. For example, content and service lifecycles are changing radically and we need to understand the impact. One challenge is how these things can be kept separate, i.e. move away from traditional models where they are all locked together (for example, consider television and how the way that content is commissioned and shot is actually a result of the way people will view it on a TV set and the way it will get to them over the airwaves - the device, channel and content are all connected). Questions we would investigate include: how can content be engineered so it remains usable when the devices and networks used to produce, consume and distribute it are transient? How can content be engineered when these devices and channels may not even exist yet?</p> <p>Duration of the parallel session: 90 minutes</p> <p>Other domains required to participate and how</p> <p>Networks, IoT, Content</p> <p>More information: http://services.future-internet.eu/index.php/Lifecycle_engineering_for_Future_Internet_Applications</p>	
<p>NEM1</p> <p>NEM</p> <p>Jean GELISS</p>	<p>Vision towards Future Media Internet</p> <p>Current networks and infrastructures for content and communication will be gradually replaced by the future Internet. Changing demographics, changing lifestyles, demanding educated consumers and media literate</p>	

EN	<p>prosumers, and trends in globalization are driving forces for the exploitation of technological developments. Networked devices and Flexible Service Platforms have emerged as new R&D drivers. These changes affect the context and scope for R&D in the NEM domain dramatically. The major challenge that the NEM domain needs to envision for 2020 is derived from the magnitude with which the overall digital universe increases: much faster than 10-times-in-five-years. NEM 2020 vision positions will investigate some answers to this future needs.</p> <p>Duration of the parallel session : 2 hours</p>	
<p>NEM2</p> <p>NEM</p> <p>Malte BEHRM ANN</p>	<p>Content</p> <p>Content is becoming more and more important for ICT and Futur Media Internet (FMI). Not only technologies of content manipulation and transmission, but also technologies of content creation it self. R&D changes patterns in the service oriented FMI universe: User centric means often content - centric. On the other side content itself can be a technology driver. Innovation happens today in a field of ubiquity of content on multiple devices largely self-organized by communities and centred on aggregators. Business models, human machine interfaces and the cultural implication decide in large parts about the technological success. Inventing the content is necessary for the innovation of technology. Content is also increasingly responsible fort he definition of technology standards. This leads to activities encouraging and developing innovative interactive media content and services, including synergies between different delivery platforms, and synergies between media forms such as interactive and linear content means to make and convert media content which can be used on multiple delivery platforms. Know how in cameras, recorders, production equipment, and display are the 'vanished sciences' for Europe.</p> <p>Duration of the parallel session : 2 hours</p>	
<p>NEM3</p> <p>NEM</p> <p>Andrew OLIPHANT</p>	<p>User-generated content</p> <p>What actions are needed to facilitate the exchange of user-generated content (whether for payment or not)? What standards are needed, in particular metadata standards, to ensure interoperability? How can the origin of user-generated content be verified? Should the originator have the right to control subsequent use and if so how can this right be enforced? How can small payments be made</p>	

	<p>securely and cheaply?</p> <p>Duration of the parallel session : 2 hours</p> <p>Other domains required to participate and how : Security, trust, privacy (for verification and security principles); Services (for rights enforcement, payment, ... services)</p>	
<p>NEM4</p> <p>NEM</p> <p>Pierre-Yves DANET</p>	<p>Multimedia Content Delivery</p> <p>The future Multimedia Content Delivery network should accommodate seamless end-to-end multi-media communications across a complex combination of network constituents such as personal area networks, body area networks, home networks, fixed access networks, mobile access networks, metro networks and core networks. The Future Internet should take into account this specific topic in order to provide an end-to-end solution able to support multimedia content requirements.</p> <p>Duration of the parallel session : 2 hours</p> <p>Other domains required to participate and how : access network, QoS, Security, devices</p>	
<p>C1</p> <p>Content Working Group</p> <p>Theodore Zahariadis</p>	<p>Media Driven Networks</p> <p>This BO session will focus on discussing "Which layers should be content aware?" and "Which network layers, if in the future Internet layers would still exist, should get more intelligence?"</p> <p>Several approaches are opened at this moment:</p> <ul style="list-style-type: none"> • Intelligent routing: core vs edge routers. Some experts advocate that routers are not touched at all vs routers that make routing decisions based on content characteristics. • The role of peer-to-peer (or fully distributed) networking paradigm for content handling in the Future Internet. • The aspects of native (distributed) searching capabilities embedded in the network and performed in real time. • The issues of seamless end-to-end multi-media communications across a complex combination of network constituents such as personal area networks, body area networks, home networks, fixed access networks, mobile access networks, metro networks and core networks. 	

	<ul style="list-style-type: none"> • The aspects related to new content codification and adaptation to facilitate content capabilities embedded into the networks. • The issues related to virtualization for overlay networks. • In terms of access to content, one of the constraints of the current model is the necessity to couple time and space with communication in order to facilitate content access. <p>Duration of the parallel session: 3 hours</p> <p>Other domains required to participate and how : Networks, Services</p> <p>Some possible endorsement/support from other domains: Security</p>	
<p>C2</p> <p>Content Working Group</p> <p>Theodore Zahariadis</p>	<p>Physical-based virtual worlds.</p> <p>This BO session will focus on discussing "Which mechanisms should be incorporated into the network to ensure that virtual 3D worlds are tightly coupled to physical worlds?" and "How 3D objects should be defined to ensure that they are representing the actual world?"</p> <p>Several points will be discussed:</p> <ul style="list-style-type: none"> • How should be done the encoding and adaptation of virtual objects so that, coupled with the network, it is ensured that the virtual (3D) world is reflecting the actual world. • Definition of new network mechanisms to ensure reliability and temporal properties, those are important on "correct" virtual worlds. • How should the network and the content be modified so as to allow smooth 3D navigation with physical and emotional involvement of the user. • How should be allocated "correctness functions" to layers: tradeoff between building in the lower layers and recovering in the higher layers. <p>Duration of the parallel session: 3 hours</p> <p>Other domains required to participate and how : Networks, Internet of Things</p> <p>Some possible endorsement/support from other domains :</p>	

	Security, services	
C3 Content Working Group Theodore Zahariadis	<p>Identity management for both users and content</p> <p>This BO session could be part of a larger session on management where aspects of content and user identity, self management, fault detection, configuration, security, accounting, accountability, performance, services management could be included.</p> <p>Duration of the parallel session: 3 hours</p> <p>Other domains required to participate and how : Networks, Security, Services</p> <p>Some possible endorsement/support from other domains</p>	
C4 Content Working Group Theodore Zahariadis	<p>Cognitive and Visual Sensor Networks</p> <p>Content form multiple sources will increase rapidly. User generated and automatic generated content will be soon the vast majority in the Future Internet.</p> <p>This BO session will focus on discussing:</p> <ul style="list-style-type: none"> • "Which mechanisms should be incorporated into the network to ensure that cognitive environments and ambient intelligence can be met", • "What mechanisms are needed for dynamic deployment/auto-configuration/plug 'n' play and remote identification of webs of nodes/sensors", • "What protocols and standards are needed for handling, querying, caching, combining and aggregating multiple multimedia streams and sessions including data from smart objects and visual sensor nodes". <p>Duration of the parallel session: 2 hours</p> <p>Other domains required to participate and how : Networks, Internet of Things</p> <p>Some possible endorsement/support from other domains: Security, Services</p>	
IoT1 IoT WG Neeli Prasad	<p>Communicating Things</p> <p>Integrating IoT to the physical world into the Network of the Future on a global scale which can be secure and trusted, by creating:</p> <ul style="list-style-type: none"> • Addressing and Naming: Do Communicating 	

Things need an IP address?

This is very strongly application dependant. Some applications can easily be realised using IP addresses on sensor nodes/RFID, others are impossible to be realised with IP addresses. For instance if we look at two extremes, a web-cam versus a mass deployment (throw and forget) of sensors/RFID for environmental monitoring, for the later, the IP end point model is clearly not suitable. Current technologies exist that provide an in-between solution (address translation at a Gateway) using IPv6 and 6LoWPAN.

Some examples for discussion: Service Discovering, ONS, EPC, ucode, Physical vs. Logical Addressing, IPv6

The EPCGlobal standards are currently in a process of definition, in particular the Information Services. This is an opportunity as much as it could be threat to Europe.

o Parallel architecture or contributions?

- Heterogeneity: The Future of the Internet will go beyond today's traditional boundaries of the virtual world by being linked to the real world, the world of objects and things. This link will be based on RFID tags and sensors embedded in objects that will allow the network to have real-time information on the whereabouts of any object (location, status, etc.). Different technologies have to work together to connect to the world. For example: RFID, Wireless Sensor Networks, Actuators, Embedded Systems, etc.

- Services: The development of the IoTs is expected to come along with a new range of user-centric services, based on the interaction of day-to-day processes with the network. IoTs provides input to the following elements and needs to be taken into account, e.g. Service Composition, Interfaces, Quality of Information, Quality of Service, Quality of Actuation, Context Awareness and Semantics.

- Scalability: The development of IoT applications, through the massive increase of new entry points into the network; represent a challenge for the scalability of the network, its communication protocols and middleware. Network symmetry requirements may also need to be revisited. Development of applications such as: Sensor Data, Streaming Data, Filtering Aggregation, Event-Driven Architectures, Edge Processing, Distributed Business Logic, etc.

	<p>Duration of the parallel session: 2.5</p> <p>Other domains required to participate and how</p> <p>Networks, Services, Security and Experimental facilities</p> <p>Endorsement/support from other domains</p> <p>Networks</p>	
<p>IoT2</p> <p>IoT WG</p> <p>Neeli Prasad</p>	<p>Personalised services and content</p> <p>Communications environments will become smarter, more responsive, and more accommodating to the needs of the individual. Future of the Internet with future technologies will provide context-aware services and simultaneously introduce new levels of personal safety. Personalisation and ubiquitous access to information and communications will be essential. Users will be able to create a personal profile that, according to the situation and moment, will allow them to access the most relevant information via the most suitable means of communication.</p> <p>Duration of the parallel session: 1.5</p> <p>Other domains required to participate and how</p> <p>Services and Contents</p>	
<p>IoT3</p> <p>IoT WG</p> <p>Neeli Prasad</p>	<p>Trust at scale and high granularity</p> <p>As individuals rely progressively more and more on Internet of Things applications, a new level of trust will emerge in the system. The applications, regularly processing personal data, will have to be (and be perceived as) secure enough to prevent identity theft and disclosure of unwanted information. In particular, the exchange of secure information between different systems will have to integrate new aspects of privacy control. Schemes for reputations may also be needed in the world of objects.</p> <p>Duration of the parallel session: 1.5</p> <p>Other domains required to participate and how</p> <p>Services and Security</p>	
<p>TI1</p> <p>A Gavras</p> <p>Test</p>	<p>Usage of the FIRE facilities based on use cases</p> <p>The scope of the session is on clarifying how the FIRE facilities can be used by potential customer (e.g. FP7 projects).</p>	

<p>infrastructures</p>	<p>All invited stakeholders will be invited to prepare detailed description of potential use scenarios for the FIRE facilities. Panlab/PII, OneLab/Onelab2 and Federica will provide two scenarios each. One scenario will illustrate the use in the short term (2 years) while the second will illustrate the use in the longer term (5 years).</p> <p>These scenarios will be provided as example scenarios to representatives of the other domains with the invitation to respond with appropriate scenarios in return. Minimum two scenarios will be requested from each domain.</p> <p>The objective of the session will be, to present and discuss the available scenarios with the following aims:</p> <p>To allow the representatives of the other domains understand how to use the FIRE facilities</p> <p>To enable the providers of the FIRE facilities understand the future requirements of their “customers” allowing them to consider these in the deployment of the facilities</p> <p>The invited domains include but are not limited to:</p> <ul style="list-style-type: none"> • Network of the Future • Internet of services • Networked Media • Internet of Things - Secure, dependable and trusted Infrastructures • FIRE Research • 3D Internet <p>Duration of the parallel session: 3 hours</p> <p>Other domains required to participate and how: All other domain will be invited. As a minimum requirement the following domains must participate:</p> <ul style="list-style-type: none"> • Network of the Future • Internet of services • Networked Media <p>Example use scenarios will be provided by FIRE projects. The other domains should respond with appropriate scenarios. All scenarios should be discussed at the session.</p>	
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<p>ISI1</p> <p>Fogliati Vincenz o</p>	<p>The “Emergency Internet”: Future Internet to be available anywhere & anytime, also during emergencies and for security applications</p> <p>A Future Internet should be designed in such a way that access to network capacity and services is available “anywhere-anytime”, including during crisis situations. As such, Future Internet shall be able – among others – to support emergency and security management in a trustworthy way and to assist society to restore normal situations following emergencies, crises or natural disasters. In the case of disasters, emergencies or crises, universally available Future Internet could be a real “salvation anchor” for disrupted populations.</p> <p>The use of satellite communications, in combination with other communication networks, can provide seamless ubiquitous connection to multitude applications requiring data and audiovisual content for disaster recovery and monitoring. Moreover, satellite links can replace disrupted terrestrial backbones particularly in restoring telecommunication services for first-aid communications.</p> <p>Duration of the parallel session: 2 hours (first draft estimate)</p> <p>Other domains required to participate and how: national and European bodies and institutions in the public interest sector could be invited to the session</p> <p>Endorsement/support from other domains:</p> <p>Possible support could be expected from social/public interest domains: the Future Internet shall put more emphasis to social needs comparing to the current situation, where the services the Internet offers are mainly driven by private sector priorities and a great deal of attention has been paid to better security in support of e-commerce, but much less to social needs. A very important example of a collective social need is communication service in times of crisis.</p>	
<p>ISI2</p> <p>Fogliati Vincenz o</p>	<p>The “Mankind Internet”: Future Internet to be available anywhere & anytime, to enhance civilization and ease daily life.</p> <p>Broadband access to telecommunication network capacity and services must be guaranteed “anywhere-anytime” to universally exploit Future Internet, which is becoming a fundamental service that communities use and rely upon. As such, Future Internet shall be able – among others – to support daily life in developed Countries (increasing</p>	

	<p>welfare and cost/effectiveness of some services) such as within developing Countries (providing a broad range of services, including telemedicine and educational programmes). Telecommunication infrastructures must be conceived to guarantee access to the Future Internet also where currently it is poor: in this view the role of satellites can be of primary importance.</p> <p>Duration of the parallel session: 2 hours (first draft estimate)</p> <p>Other domains required to participate and how: national and European bodies and institutions in the government and public interest sector could be invited to the session</p> <p>Endorsement/support from other domains:</p> <p>Possible support could be expected from governmental and social/public interest domains: the Future Internet shall put more emphasis to social needs comparing to the current situation, where the services the Internet offers are mainly driven by private sector priorities, but much less related to social needs.</p>	
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