



The **ISG** Initiative: The need to create an  
**ISG** (Industry Specification Group):  
“**Autonomic Network Engineering for the  
Self-Managing Future Internet**”

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# Rationale

- **What is the current perception concerning Network Evolution towards Future Internet?**
  - **Background:** Many of all the key industrial players and other stakeholders seem to be very much **in favor of hearing about evolution paths for today's network models and paradigms, than revolutionary approaches, for reasons which are very well-known.**

e.g.:

    1. the huge costs associated with any revolutionary undertaking,
    2. the fear of jeopardizing proven and well satisfying business models,
    3. the fear of drowning into complex technologies



# Rationale

- **There is an urgent need to persuade key players in the networking community to quickly join in the call for the Self-Managing Future Internet (2 things must happen soon)**
  1. The definition of a **Reference Model of a holistic Generic Autonomic Network Architecture that defines the autonomic elements and the self-manageability properties of the Future Internet**. For this, researchers from both, the evolutionary approaches and the revolutionary approaches, should be involved in creating the Reference Model.
  2. The definition of **a viable Roadmap of an evolution path for today's network models, protocols and paradigms as necessitated by the Reference Model**. The roadmap should include implementation issues such as the appropriate systems engineering methodologies for



# Rationale

- **Why establishing the ISG in a well-established Standardization Body**
  - There is actually a **critical need to find ways to reach out and attract** a large base of most of the **key industrial players who are currently members of the well established Standardization Bodies.**
  - Experience has shown that most industrial players have extensive knowledge, regarding **the design of architectures that meet performance and scalability demands required of production networks.**



# Rationale

- The need to **encourage harmonization and pragmatism in and across the Circles of both, the evolutionary approaches and revolutionary approaches**, in order to have well focused goals, with some divisions where there ought to be some divisions.

The two Circles could **first work together in the creation of a Generic Architectural Reference Model of Autonomic/Self-Managing Nodes, Devices, and Networks**. Differing approaches can then be taken in terms of how to move from the **Generic Architectural Reference Model** to implementation issues—either an *evolutionary approach* OR a *clean-slate implementation*



# Rationale

- The need to **understand that the meaning of “the future” as understood and interpreted by the industry is different from the “the future” as understood and interpreted by researchers in the academia.**

We are now at a crucial moment calling for the creation of harmonized evolutionary approaches towards the Future Internet design, in order to come up with a *Roadmap on the evolution of today's network models, paradigm and protocols.*



# Rationale

- **The support available from well-established Standardization Bodies like ETSI. ETSI has recently launched the initiatives of so-called Industry Specification Groups (ISGs).**
  - **An ISG is a new form of ETSI committee which sits alongside ETSI's existing Technical Organization.**
  - **An ISG enables ETSI members (*most of the key industrial players we seek to involve in the Future Internet design*) to develop ETSI Group Specifications while using ETSI's world renowned IPR Policy and Standardization Support Tools.**



# Rationale

- **Some of the support ETSI provides, which is not available (in full) from forums like ACF:**
  1. Guidance-rules, procedures and partnership forming; Meeting Rooms;
  2. Meeting support;
  3. Meeting Management Tools,
  4. Specifications Management;
  5. Dedicated secure work area on the ETSI Portal;
  6. E-mail list service, Processing & Publication of ETSI Group Specifications (GSs);
  7. Meeting secretary;
  8. Technical Editor;
  9. Rapporteur;





# Rationale

- **Why not the ACF?** – ACF would interwork with the ISG on some aspects described later
  - The ACF is a relatively new Forum (not a Standardization Body) created in 2004 and has not yet managed to attract a substantial number of key industrial players and other vital stakeholders.
  - Some industrial players believe that the ACF is rather oriented towards academic type of research and has no specific well focused target of producing quality Specifications that can one day mature into Standards.
  - The ACF is trying to cover a broad array of some research issues related to autonomies, some of which are much oriented towards experimental academic type of



# Rationale

- **Co-operation between the ACF and the ISG**
  - **The ISG we are advocating for creation, would need to work in parallel with activities in the ACF, and should also contribute (make visible) its Specifications to the ACF. The ACF activities in turn, would need to continuously contribute those *ideas that become considered as mature*, to the ISG for considerations in evolving the Specifications maintained by the ISG.**
  - **The ISG would enable us to attract a large base of most of the key industrial players** who are currently members of the well established Standardization bodies like ETSI and are currently not members of the ACF. This will also

# Scope, Structure of the ISG and Duration



- **The Autonomic Network Engineering for the Self-Managing Future Internet ISG** will develop ETSI pre-standards and specifications for Autonomic Network Engineering for the Self-Managing Future Internet, including the following activities:
  - Encourage harmonization and pragmatism across the circles of both the evolutionary approaches and revolutionary approaches to Future Internet,
  - **Sub-Group 1: Definition of a Reference Model of a holistic Generic Autonomic Network Architecture (GANA)** that defines the autonomic elements, the self-manageability properties of the Future Internet. Researchers from both the evolutionary approaches and the revolutionary approaches should be involved in creating the GANA Reference Model.

# Scope, Structure of the ISG and Duration



- **Sub-Group 2:** Development of the **GANA Meta-Model** associated with the Reference Model.  
Development of **Advanced Methodologies for the engineering of Context-aware autonomic Decision-Making-Elements (DMEs) of GANA, their Control-Loops, Interfaces, etc**, including the application of OMG's MDA approaches and Formal Description Techniques (FDTs) towards Simulations and Validations of complex autonomic behaviours, as well as Code-Generation from formal models of Context-aware DMEs for diverse networking environments. The group will cover implementation issues such as the appropriate systems engineering methodologies for autonomic networking software/systems.
- **Sub-Group 3:** Definition of a viable **roadmap with an evolutionary path for today's network models,**



# Scope, Structure of the ISG and Duration

- The **3 Sub-Groups** of the ISG should consider, during their activities, the Issues presented in
  - “Future Internet and its multiple dimensions” — in slides of Future Internet Cluster Meeting, 11 June 2008, Stockholm, by Dimitri Papadimitriou.



# Time Plan, Terms of Reference

- **EFIPSANS** partners will be concluding the ToR document very soon and we expect the ISG to be established in January/February 2009.
- Some of the partners steering the establishment include: Alcatel-Lucent, Ericsson, Fraunhofer FOKUS, TSSG, Fujitsu-Labs of Europe, Telcordia (Only a minimum of 4 members is required for establishing the ISG).
- Invitations for membership will be send out including membership agreement forms and participant agreement forms.
- Initial duration is 3 years but the ISG is bound to



# Envisioned Liaisons

- **ACF (Autonomic Communications Forum)**
- **IETF**
- **IRTF**
- **ETSI TISPAN**
- **3GPP**
- **NGMN**