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Revision History

The following table describes the main changes done in the document since its creation.

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v1.1	31/08/2006	Document closed	Jordi Palet (Consulintel)
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v1.3	16/11/2008	Final Review	Jordi Palet (Consulintel)

Executive Summary

This deliverable is a comprehensive summary of the RiNG project, which can be used as an overall introduction to the project objectives, project approach/work packages and key issues.

A list of project partners is also included.

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1. INTRODUCTION

The goal of RiNG is to support the coordination, study and analysis of routing protocols on the Internet and to determine and understand the challenges ahead, considering the current and future expected Internet growth, leading to proposals for novel approaches towards the evolution of routing.

Towards this end the project comprises an expert group, which will be open to the participation of other experts by means of meetings and other collaboration means, leading to a broader community “think tank” on the topic, forming a kind of “Routing Cluster”, including not only experts from other relevant IST projects, but also other international related activities.

The project will analyze and keep track of the state of the art in standardization and policy, survey the users and service providers, and propose further alternative related research and innovation strategies to address the challenges.

By means of the different activities, the project will seek to foster, increase and support European participation in the related pre-standardization, standardization and policy process, dissemination of the results and monitor those developments.

The project proposed research and innovation strategies, most probably, will require further standardization and policy-making, so the project will need to find a community consensus, for the development and implementation of the project results (by means external to the project).

The following table shows some relevant data:

Project Acronym:	RiNG
Project Name:	Routing in Next Generation
Project Type:	CA (Coordination Action)
Contract No.:	FP6-IST-035167
Project Duration:	36 Months
Total Cost:	847,450 €
EC Funding:	745,000 €

2. PROJECT OBJECTIVES

As a premise, RiNG is based on that routing in the next generation networks requires further in depth discussion and analysis. At this point, it is not possible to predict whether the current routing infrastructure will be able to evolve to support those requirements or whether the entire inter-domain routing architecture and protocol will need to be replaced. The first thing is to understand which issues should (or should not) be addressed, in which protocol(s), and using what kind of time frame. The project will need to address those concerns.

At this point, it is not clear if BGP could or should be improved in order to address some or all of the concerns, and in which time frame this may be applicable. The project will need to address this question.

If a new routing protocol needs to be built from scratch, it is necessary to do an evaluation now, because the development and deployment of new inter-domain protocols takes a long time. Furthermore, doing so requires that the protocol meet the user requirements, operational requirements and business incentives of the network operators. The project will study and analyze those requirements and propose new standards if required.

The analysis and monitoring of the state of the art in terms of standardization and policy, including the liaison and cooperation with the related standard bodies and RIRs (Regional Internet Registries) is also a must, as some of the issues may not only be technical, but also policy related (for example, with respect to geographical and provider-independent addressing).

RiNG aims to support extensive dissemination of the work being done by all participants of the “Routing Cluster”, in order to achieve a community-based consensus on the way forward towards the development of the future research strategies on this topic.

It is important to clarify that it is not a project objective doing any research but taking the outcomes of past or existing projects and activities, related to routing in next generation networks, protocols and technologies (such as IPv6, but not exclusively), but they need to be coordinated with a wider community support to succeed from the standardization perspective. This is part of the added value of the project versus the individual participation in standardization foras.

The main project objectives of RiNG are:

1. Coordinate a community “think tank” on routing aspects (Routing Cluster), providing operational support for the organization of open working meetings and other collaboration tools, such as an email exploder and web site.
2. Surveying both ISP and user (site) requirements for routing in the next generation of networks.
3. Analyze the related state of the art in standardization and policy versus the user/ISP perceived requirements.
4. Development of research and innovation strategies for inter-domain routing evolution.
5. Disseminate the project and related results, including the relevant standardization and policy activities.

3. PROJECT APPROACH

To achieve the goals previously enounced the project has been structured in four work packages which are shown along with their interdependencies in figure 1 below.

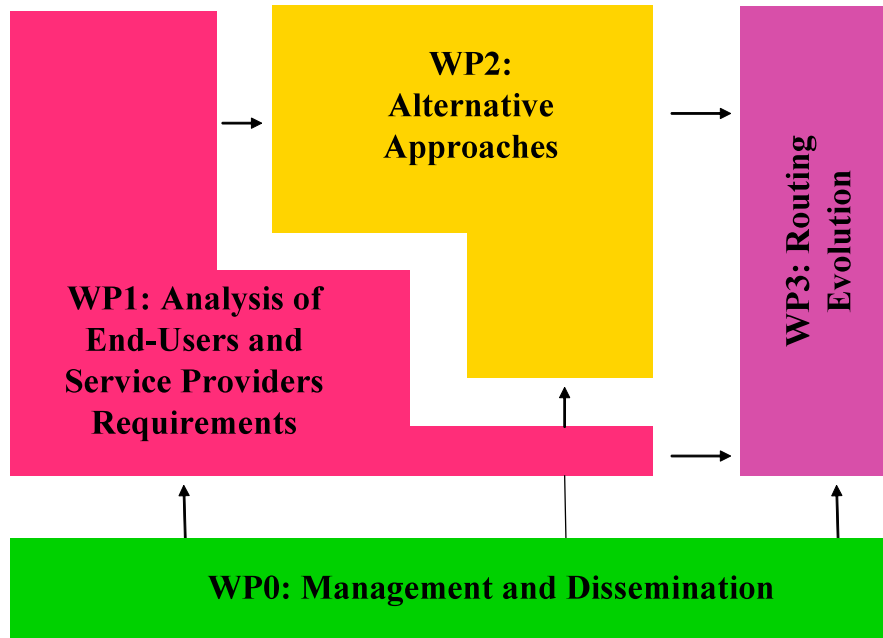


Figure 1: Pert Diagram

WP0 is responsible for the project management. As such it will ensure that all other WPs operate in a coordinated and coherent way. It will also take care of various administrative tasks, such as time and resource control against deliverables, progress reporting to the commission and organization of plenary meetings, dissemination and standardization.

WP0 also will be the responsible for the attendance to events and organization of any dissemination and clustering activities and publications, acting as the project “think tank”, fostering and open to external contributors. WP0 is also the responsible of the liaison with standard bodies. WP0 can be seen at the same time as the concentrator of the rest of the project activities, and as the executing interface for the support to the routing related activities, both by the project partners and other related activities/participants (Routing Cluster or “think thank”).

WP1 is in charge of capturing the requirements that users and service providers are demanding and will further demand on the next generation inter-domain services and networks. The WP will also analyze the work done in standardization bodies and scientific fora and provide any required inputs. The outputs of this WP will be taken into account in WP2 and WP3.

WP2 will take as input part of the work carried out in WP1 as well as the current trends in network engineering to propose different approaches to solve the deficiencies of the current inter-domain routing.

WP3 will try to summarize the work done in WP1 and WP2 to propose evolutions of the inter-domain routing architectures to solve the limitations detected in the current ones. The WP will explore solutions based on the improvement of the current BGP-based routing architectures as well as the creation of new inter-domain routing ones.

4. KEY ISSUES

Considering current and future Internet from the routing point of view, the RiNG “Universe” is depicted in the following figure:

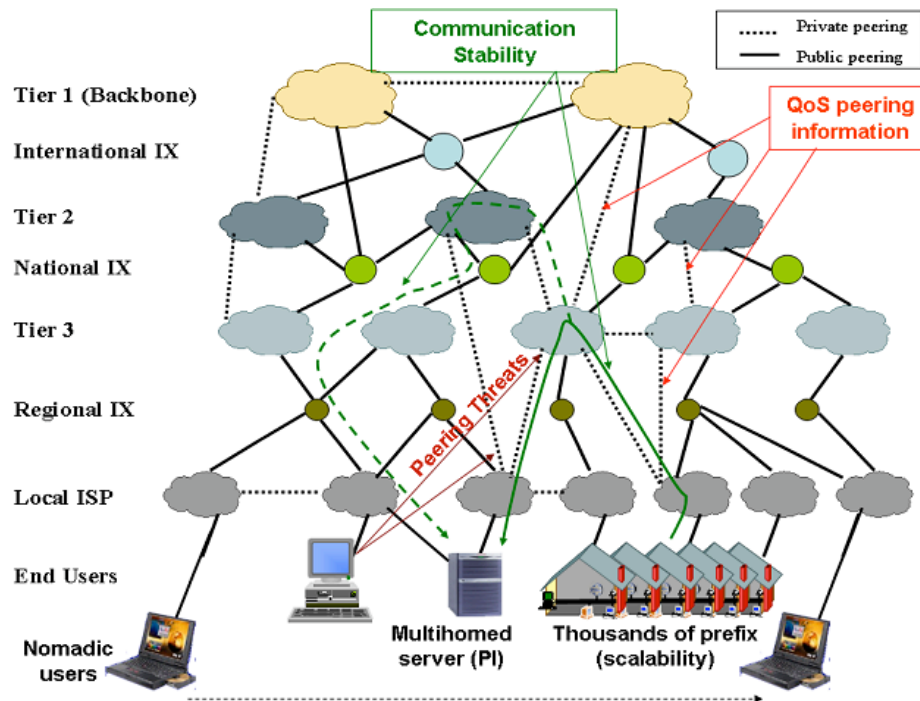








Figure 2: RiNG “Universe”

The expected results, towards which the project will be self-assessed, can be summarized as:

1. Creation of the Routing Cluster, a community “think tank” on routing aspects, involving other projects, activities and related industrial participants.
2. Support of the coordination of the Routing Cluster activities, mainly the open workshops, collaboration in standardization, dissemination activities and tools (web site, mail exploder, others) and two publications.
3. Analysis of both ISPs and user (site) requirements for routing in the next generation of networks.
4. Analysis of the state of the art in standardization and policy versus the user/ISP perceived requirements.
5. Analysis of approaches to multihoming, avoidance of provider captivity, traffic engineering and intra-site stability.
6. Analysis of BGP evolution scenario.
7. Development of research and innovation strategies for inter-domain routing evolution/architectures.
8. Recommendations for the inter-domain routing architecture of next generation networks.
9. Production of the project deliverables.
10. Dissemination of the project and related results, including the relevant standardization and policy activities.

5. LIST OF PARTICIPANTS

Participant Name	Participant Short Name	Country	Logo
Consultores Integrales en Telecomunicaciones "Consulintel", S.L.	Consulintel	ES	
Telecom Italia S.p.A.	TI	IT	
Universidad Carlos III Madrid	UC3M	ES	
CSC - Scientific Computing Ltd.	CSC	FI	
Internet Technology Advisors	INETTECH	SE	
UNINETT AS	UNINETT	NO	
University of Southampton	Soton-ECS	UK	