IPv6 Commercial Deployment in Europe

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The European IPv6 Task Force

- The European Commission created the IPv6 TF (2001)
- Goal: Prepare the roadmap for the IPv6 adoption and large scale deployment in 2005

Next Generation IPv6 TASK FORCE

- "Our objective is to ensure that Europe's competitiveness in wireless technology is not jeopardized by the lack of a clear road map towards IPv6," European Enterprise Commissioner Erkki Liikanen said in his opening speech to the IPv6 Task Force.

European Commission IPv6 Task Force · IPv6 TASK FORCE Steering Committee · IPv6 FORUM · ConsultinTel Consultores Integrales en Telecomunicaciones

The move to IPv6 is Global

- January 2002: The TF concluded
- February, March and June 2002:
  - The EC and the Council publish different documents adopting the TF conclusions.
- e-Europe 2005: IPv6, Broadband and 3G
- Continuation of the TF, in a 2nd phase, with the support of the Steering Committee project
- Several European countries (Spain, France, UK, Germany, Switzerland, …), initiated local activities
- Several TF-like groups across the world, cooperating together

R&D "Arena": Past & Present

- A few research projects 2-3 years ago (FP5 - IST program)
- Now several Research projects representing investments over **180 MEuros** (90 from the EC)
- Major platforms and networks:
  - 6NET, Euro6IX
  - Available NOW, and interconnected
  - With international peering to Japan, Korea, Abilene (Internet2), …
  - Also to provide native connectivity for other projects
- Over 40 projects:
  - With IPv6 as the main focus (6POWER, 6QM, 6WINIT, …), or
  - Using IPv6 for new applications and services (Android, Crumpet, …)
- 6LINK to support the collaboration in the IPv6 Cluster
- Eurov6 to provide permanent and nomadic showrooms for the industrial and R&D achievements

Information Society Technologies

R&D "Arena": The Future

- Next IST Program, FP6, clearly supports IPv6, Broadband and 3G as key technologies
  - Over 900 MEuros in the 1st call (4-5 calls)
  - International cooperation expected and highly encouraged
- The IPv6 Cluster facilitated the creation of the "ALL-IPv6-World" WG
  - 20 Activity areas suggested
  - Towards new applications and services
- IPv6 as a key enabler of "Ambient Intelligence"

IPv6 Cluster

www.ist-ipv6.org

6LINK IPv6 Projects United

www.6link.org

European Commission IPv6 Task Force

IPv6 TASK FORCE Steering Committee

IPv6 FORUM

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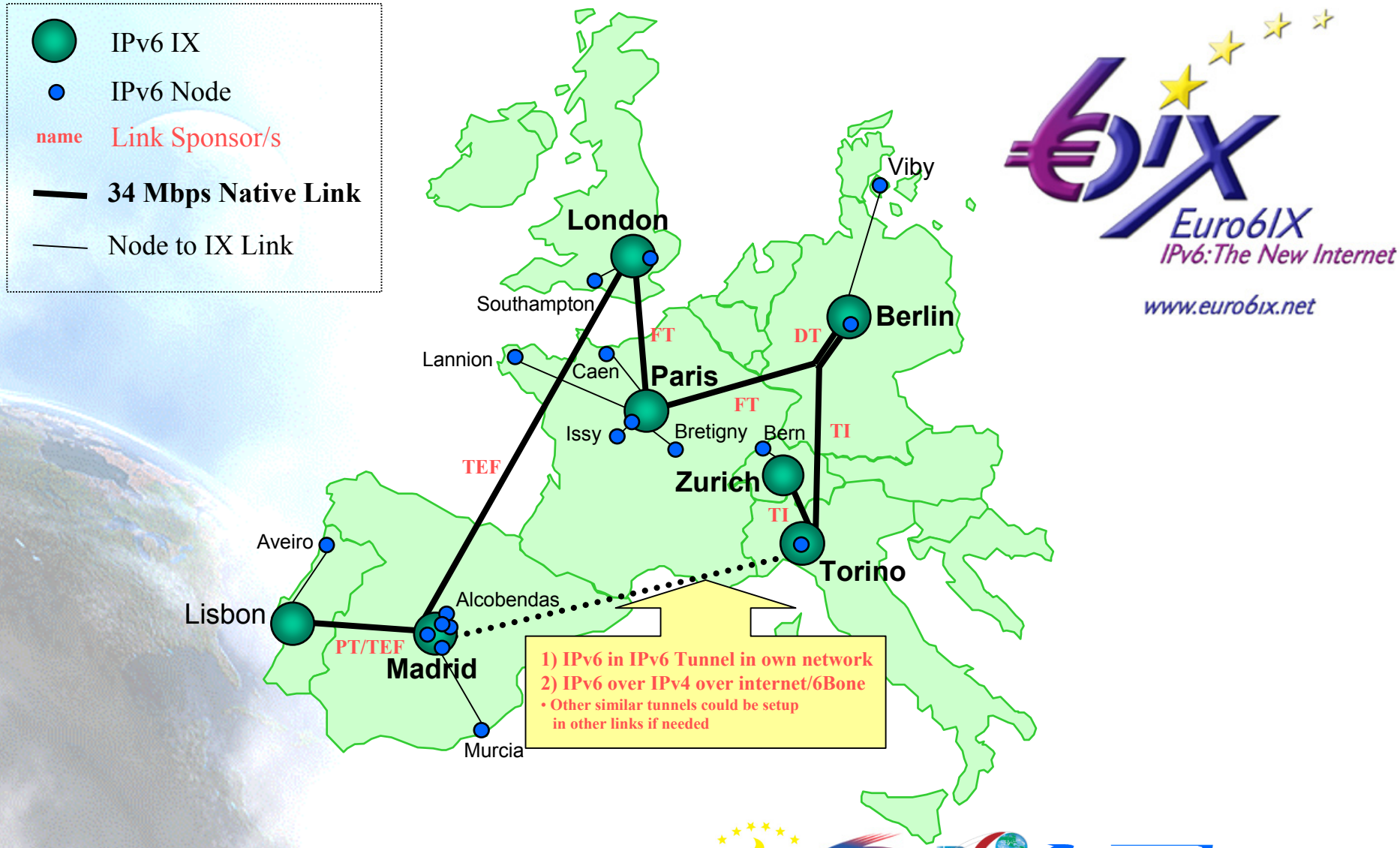
Deployment Status

- European industry is supporting IPv6
  - In a short term
  - Manufacturers of devices, routers
  - Appliance manufacturers
  - Application developers
- Several Telcos and ISPs seriously considering commercial deployment, some already started
  - A few already providing services
  - GEANT moving to IPv6 NOW
- Education programs still needed

Pre-Commercial Trials



Euro6IX
IPv6:The New Internet
www.euro6ix.net

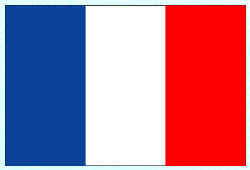
And Moving …

To Commercial

*** With Contributions from Several
European Telcos and
National IPv6 Task Forces

Portugal

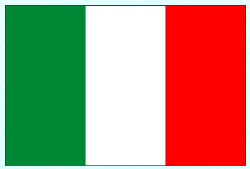
- IPv6 Portuguese Task Force created with the support of UMIC (Governmental entity responsible for incentive the innovation in Portugal and follow the eEurope 2005 European program).
- Strong involvement in R&D activities (Portugal Telecom Inovação).
- No ISPs starting IPv6 commercial operation or public trials in Portugal. No publicly known dates defined to start.
- GigaPIXv6 (public IX operated by FCCN) started operation several months ago.
  - FCCN, Vodafone Portugal, Telepac (Portugal Telecom Group) and other small regional operators (NFSi).
- Some companies are performing small internal trials with several access networks. Telepac: Internal trial with ISDN and preparing for ASDL.
  - Commercial around 2004
- Other companies from PT Group investing in IPv6 training.
- Documentation being written for high level instances on PT, pointing to start thinking seriously in IPv6.



France

- Strong participation on the France IPv6 Task Force
- Deployment of internal IPv6 network between sites of FTR&D since 1998.
- Deployment of a national scale IPv6 and dual-stack high bandwidth network within VTHDv6 project (national research project).
- Experimentation of a WLAN IPv6 network within Strasbourg University campus.
- Strong involvement in R&D activities

- Operational: Opentransit
  - France Telecom's carrier has deployed an IPv6 native backbone, in order to help customers to move forward RIGHT NOW.
- IPv6 in 2 IX



Italy

- IPv6 Task Force being kick-off next October
- Early participants in IPv6 standards and R&D
- Strong involvement in R&D activities
- ngnet.it Telecom Italia initiative
  - More than 30000 experimental users to Tunnel Broker service
  - 2000 users connected together
- Applications services:
  - IPv6 only IRC server with more 1000 users connected together
- Other Telcos starting to be involved in IPv6 in Italy.
  - Wind
  - Edisontel
- IPv6 in the two main IX
  - Milan Internet Exchange
  - NAMEX (Rome)

Spain

- Strong participation in the Spanish IPv6 Task Force, supported by the Ministry of Science and Technology
- Strong involvement in R&D activities
- IPv6 in two IX
- DNS root server mirror moving to IPv6 (Espanix)
- 1st Newspaper offering all the contents in IPv6 (El Mundo)
- 1st Hotel of the World with IPv6
- 1st ISP already commercial (arsys)
- Several ISPs starting soon …
- LMDS service with IPv6 soon …
- WLAN service with IPv6 soon …
- NAP with IPv6 soon …
- Telefónica Data: Transit Pre-commercial pilot, with several customers. Feel more interest, but still no real business. May be after 2004.

Switzerland

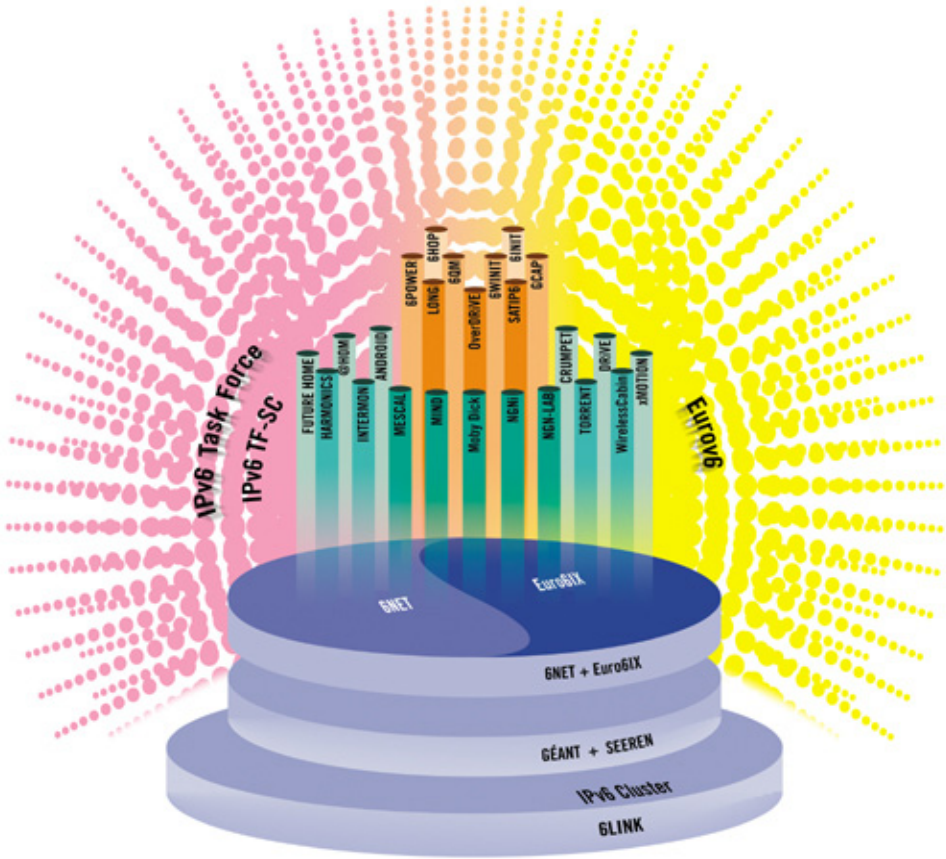
- Swisscom Mobile:
  - Plans for GPRS/UMTS, first testing for WLAN.
  - Commercial expected in 2004 (WLAN) and 2005 (UMTS)
- Swisscom Enterprise Solutions (ISP for business customers):
  - RIPE IPv6 /32 since Sept 2002, test environment with native IPv6 connectivity to Euro6IX since June 2003.
- Bluewin (ISP for residential customers): RIPE IPv6 /32 since May 2002, test environment.
  - Commercial expected 2004/2005
- Swisscom Innovations (Swisscom R&D):
  - 6Bone TLA since 1997, testlabs since then, operational Intranet with IPv6 support since April 2003.

Others ...

- Germany
  - Deutsche Telekom and T-Systems are working on IPv6 in projects (European projects, Customer projects) for several years.
  - Deutsche Telekom has done an IPv6 Showcase with industry partners and is founding member of the IPv6 Forum and the European and German IPv6 Task Force.
  - T-Systems, the system integration subsidiary of Deutsche Telekom, is offering IPv6 in customer projects on a project basis.
- UK
  - Pre-commercial trials by a number of leading Telco's, ISPs, IX, corporations, SMEs and individuals.
  - BT is heavily involved in R&D, the IPv6 Forum and IPv6 Task Force.
- Several European IXs, some ISPs.
- Global carriers with presence in Europe:
  - Global Crossing, NTT/Verio, Telia. A few others working on it, but not public info.
- Other countries also involved, including Belgium, Denmark, Sweden and Netherlands.

The FP5 IPv6 Picture

- Deployment
  - 6NET
  - Euro6IX
- Promotion
  - Eurov6
  - IPv6TF-SC
- Clustering
  - 6LINK
- Others
  - More specific



Big Experimentation Platforms

- In Particular
  - 6NET and Euro6IX
  - Total budget: 34 M€
  - Total EU funding: 18 M€

http://www.6net.org http://www.euro6ix.org

6POWER

IPv6, QoS & Power Line Integration

6QM

IPv6 Quality of Service Measurement

www.6qm.org

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Eurov6:

The European IPv6 Showcase

www.eurov6.org

EC IPv6 Task Force

http://www.ipv6tf.org

The Global Effort

- Now the Task Force is not just Europe !
- Is a “global” issue, with strong cooperation with the rest of the world
  - Global R&D
  - Global policy
  - Global deployment
  - Global business
- Global deployment already started
  - See Japan !
  - IPv6 Applications Contest just started (http://www.ec.ipv6tf.org/PublicDocuments/030203apc-eg.pdf)

IPv6 TF-SC

http://www.ipv6tf-sc.org

IPv6 TF-SC: Objectives

- To perform all required actions aiming at the enhanced coordination and continuation of the work performed within the IPv6 Task Force with an enlarged participation and renewed mandate as the IPv6 Task Force 2nd phase.
- To provide a regularly updated review and plan action on the development and future perspectives of IPv6 in order to coordinate European efforts on IPv6.
- See http://www.ec.ipv6tf.org/in/i-finalreports.php

IPv6 Project Cluster

IPv6 Cluster

www.ist-ipv6.org

6LINK

IPv6 Projects United

www.6link.org

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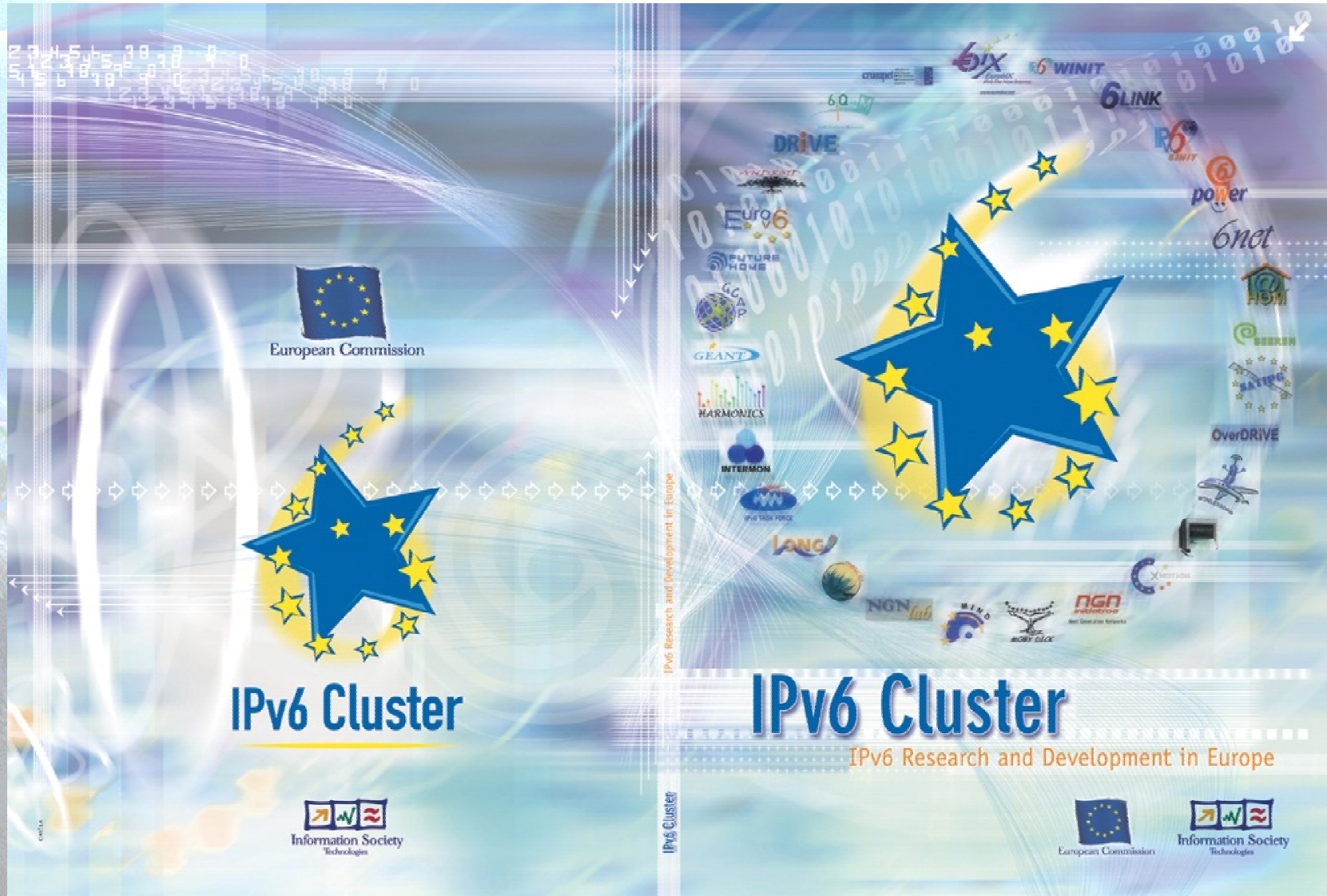
6LINK: Objectives

- Consensus building
  - IPv6 development
  - IPv6 deployment
- Dissemination
- Exploitation of consensus
  - Common trials
  - Coordinated input to standards development

IST IPv6 Cluster

- www.ist-ipv6.org
- Register and get:
  - Newsletter (every 2 months)
  - Standards report (every 4 months)
  - Applications Database
  - Publications
  - Contact with IPv6 EU Researchers

IPv6 R&D in Europe



IPv6 is Here, TODAY !

- IPv6 bring us the *Knowledge Society*
  - "Ambient Intelligence": Seamless delivery of services and applications.
- Are you missing the train ?
  - Then you will miss the future …

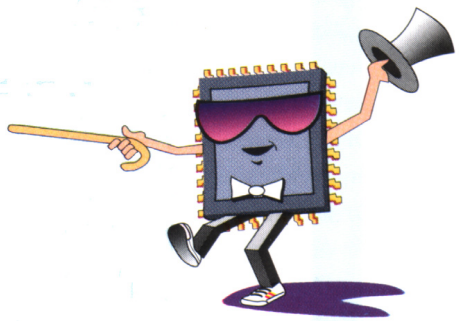
    … your customers, your business ☹

Thanks !

Contact:

- Jordi Palet (Consulintel): jordi.palet@consulintel.es

- Madrid 2004 Global IPv6 Summit, more info soon at:
  http://www.ipv6-es.com



North American IPv6 Global Summit

Conclusions, June 2003, San Diego

North American IPv6 TASK FORCE

IPv6 FORUM

Summary of Contents

- Peer to peer and related new applications
- DoD using IPv6, gradually, from NOW
- The world is moving to IPv6, isn't a local issue
- IPv6 into planes, homes, work, life
- Transition
- Embedded applications
- Mobile applications
- Test-beds and real deployment
- Interoperability

- Internet cows are coming !

The Event

- Well attended
- Excellent speakers
- 30 articles in the press (just yesterday)

DoD Announcement

- Press conference with John L. Osterholz, Director of Architecture and Interoperability, Dept. of Defense.
  - We are aggressive in our goal, but is achievable.
  - At the end, IPv6 will reach to each individual soldier.
  - Today, everything has a router, even the helicopters. These will be with IPv6.
  - Total IP budget is 30-35 billion (with b) USD, conservatively speaking. Cost of the convergence with IPv6 is being worked out right now.
  - Feedback with contractors. A few with a negative reaction, but number of them are very happy to work in the idea of pilots.
  - Is needed to provide IP connectivity to soldiers in the field. Will do also convergence with VoIP.
  - Hundreds of IP addresses with every soldier. The big issue are still the batteries!
  - The DoD isn't comfortable leading this technology, we don't want to have a commercial role, but we do it because we recognize that the products and technology is here. IPv6 community talked to us and we heard the message.
  - Within 6 years satellites will provide IP capability at Gigabit speeds, and that will help the convergence with wireless. Is the transformation of communications. Software defined radios are here.

RoW

- Aug. 2003, Seoul, IPv6 Summer Retreat
  - Kicked off the Asia Pacific IPv6 Task Force, in cooperation with EC IPv6 TF
  - www.ap.ipv6tf.org

- 1st /30 delegated by APNIC … that's real large scale deployment !