



## N4C FINAL CONFERENCE

### Future Internet Learning from Experience

You are cordially invited to the N4C Final Conference – an internet event open for your online participation from home, travel or office

Date: 14 April 2011 at 10:00–14:00 and 16.00–20:00 CET  
Platform: Adobe® Acrobat® Connect™ Pro Meeting

Register for access and participation: send an email with subject "FILE registration" to [caroline.wamala@ltu.se](mailto:caroline.wamala@ltu.se). You will then receive the conference link shortly before the event.

## ABOUT N4C

The Networking for Communications Challenged Communities (N4C) project is funded from **May 2008 to April 2011** from the Future Internet Research and Experimentation (**FIRE**) initiative in the European Union Seventh Framework Programme. The consortium consists of twelve partners in eight European countries. Together the partners have been looking at ways to extend Internet access to remote regions that do not have reliable and affordable network access today. There are many locations in the world that are not within reach, or at least not within affordable reach, of the optical fibres, copper cables, radio waves or even satellite links that make up the physical infrastructure of the world's networks. Currently, being unable to reach this physical infrastructure precludes a user from accessing any of the Internet's services. Our take on this challenge has been to use novel technologies to exploit new communication opportunities.

A key role in N4C is played by the emerging **Delay and Disruption Tolerant Networking (DTN) technology**. Another key factor which has been researched in N4C is the **air-interface technologies** for the purposes of remote and communications challenged areas.

A central means for our strategy has been to set up test beds in two communications challenged areas in Europe, where the Consortium has had the opportunity to put the research and development results to trial in real life tests and networking experimentation. The **test beds** have been situated in:

- **Swedish Lapland**
- **Kočevje in Slovenia**
- **Galway, Ireland (SmartBay)**

The Consortium members are: Luleå tekniska universitet, Sweden (Coordinator); Albentia Systems, S.A. and Universidad Politécnica de Madrid in Spain; Intel Performance Learning Solutions Ltd. and Trinity College Dublin in Ireland; Northern Research Institute Tromsø AS, Norway; ITTI Ltd., Poland; Instituto Pedro Nunes, Portugal; MEIS storitve za okolje d.o.o., Slovenia; Power Lake AB and Tannak AB, Sweden; Folly Consulting Ltd., U.K



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Programme outline – Updated versions posted at [www.n4c.eu](http://www.n4c.eu)  
Future Internet Learning from Experience (FILE)

Introductory notes	<b>Ewa Gunnarsson</b> Professor, Luleå University of Technology, Sweden <b>Avri Doria</b> Independent consultant based in USA, and Professor at LTU
Keynote Speakers	<b>Antonio Dias de Figueiredo</b> Independant Consultant, Portugal <b>Patrik Fältström</b> Distinguished Consulting Engineer, CISCO, Sweden <b>Kurt Aagaard Nielsen</b> Professor, Roskilde University, Denmark
From N4C	The conference theme refers to two aspects of the N4C work. One aspect is the experimental character of N4C, and the field tests in remote locations in Europe. We have combined this approach with more established methods, to gain experience and feedback to our technical designs, but also as means to evaluate and rethink taken for granted methodologies. Secondly, N4C is one among a tradition of projects including socio-economical goals in technical development. From the architecture to details such as the development of applications prototypes, we have aimed at being useful for communications challenged communities in particular. These aspects will be portrayed in the N4C presentations <b>directly from Partners' locations</b> , and through the chat we invite your questions and your ideas in respect to the conference theme and the session themes.
Video Launch	A highlight is the launch of a video with <b>Dr. Vinton G. Cerf</b> . Dr. Cerf was one of the main discussants during the preparatory and proposal writing stages of the application to the EU FP7 call. In the video he will communicate his view on the N4C progress and results
Media presentations	During the lunch break, media presentations will feature the project staff and results from N4C, including a deployment system tutorial.
Posters	Posters will be available via the N4C home page <a href="http://www.n4c.eu">www.n4c.eu</a> and the conference link.
Your participation	The conference link will be provided to you by e-mail, from where you will be able to follow the presentations and discussions. The technical platform allows Your participation through chat. Comments and questions are forwarded to the speakers and the Chat editor will periodically summarize the chat
Conference chair	<b>Maria Udén</b> N4C Project manager, Luleå University of Technology.
Chat editor	<b>Caroline Wamala</b> , PhD, Luleå University of Technology (LTU)
<b>For enquiry</b>	Questions? Please contact Dr. Udén at: <a href="mailto:maria.uden@ltu.se">maria.uden@ltu.se</a> or Dr. Wamala at: <a href="mailto:caroline.wamala@ltu.se">caroline.wamala@ltu.se</a>
<b>www.n4c.eu</b>	Details and updated programme to be regularly posted at <a href="http://www.n4c.eu">www.n4c.eu</a>

14 <sup>TH</sup> APRIL N4C FINAL CONFERENCE 2011				
Start CET	Theme	Speaker	Topic	Chair/ editor
10.00	Meeting opens	Maria Udén	Welcome	
10.15	Access and participation: The knowledge society context	Ewa Gunnarsson	Knowledge processes in N4C - introductory note	Maria Udén
10.30		Patrik Fältström	Internet access is needed for participation in the 21st century society - therefore we need several technology options	
11.00		Kurt Aagaard Nielsen	Action Research for sustainable development: why sustainable innovations need participation: and democratic innovations	
11.30	Discussion/chat			Caroline Wamala
12.00	Technology & innovation for communications challenged communities	Avri Doria	Why use DTN for Communications Challenged Communities? Introduction and forward view	Michael Nilsson
12.30		Sigurd Sjursen	Making applications for communications challenged communities	
13.00		Santiago Zazo Bello	Air-interface technologies - progress in N4C and beyond	
13.30	Discussion/chat			Caroline Wamala
14.00	Lunch Break <i>with project presentations rolling</i>			
16.00	Implementation in society and economy	António Dias de Figueiredo	Socio-technical sustainability – the appropriation of technology in society	António Cunha
16.30		Paulo Freitas	System integration - autonomous platform preparing for autonomous implementation	
17.00		Barbro Fransson	Exploitation of results in cases where the commercial interest is limited	
17.30	Discussion/chat			Caroline Wamala
18.00	The legacy of N4C	Vinton G. Cerf	Video with comments on the occasion	Maria Udén
18.30		Marija Zlata Boznar	Results from combining high-tech and Living Labs methods	
19.00		Stephen Farrell	Delay Tolerant Networking - impact in standards and research community	
19.30	Discussion/chat			Caroline Wamala
20.00	Closing of the conference			M. Udén



## ABOUT THE SPEAKERS

**Ewa Gunnarsson** Chair of the Division Gender and Innovation at LTU represents the conference organizer and contributes with her unique experience from gender mainstreaming in knowledge organizations. Since the early 1980's Professor Gunnarsson is a recognised pioneer for using interactive methodology for ICT development.

**Vinton G. Cerf** is known as the "Founding Father of the Internet". With Robert Kahn he co-designed the TCP/IP protocols and the basic Internet architecture. Dr. Cerf founded and led the Internet Society and later, as Chair of ICANN and in other positions he has continued being an essential contributor to the internet's global development.

**Avri Doria** With merits from ICANN and known as spokesperson for the civil society in the Working Group on Internet Governance and later in the Internet Governance Forum, Avri Doria combines technical and governance expertise. Visiting at LTU in 2002 she launched the architecture idea which started the process presently represented by N4C.

**Antonio Dias de Figueiredo** is a renowned expert on IT in Learning & Education and the Socio-Technical Sustainability of Business, Innovation, Education, and IT. Former Professor of Informatics and Information Systems, University of Coimbra and Chair of PROMETEUS, he has developed advanced initiatives with UNESCO, NATO, and OECD.

**Patrik Fältström** Distinguished Consulting Engineer, CISCO, is globally known for his work on the Internationalized Domain Names (IDN) and other measures where technical design is made to facilitate cultural diversity and equal access. In his native country he is known as one of the people that realized the core national infra structure for the internet.

**Kurt Aagaard Nielsen** represents expertise in the field of democracy, participation, and knowledge society development strategies. A sociologist by training, Dr. Aagaard Nielsen is presently a Professor at Environmental, Social and Spatial Change at Roskilde University. His recent publications include 'A New Agenda for Sustainability' from 2010.

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## About the Conference and Session Chairs

**Conference Chair:** The N4C Project is coordinated by Luleå University of Technology in Sweden, and Dr **Maria Udén** as the project leader, has a long history with the N4C project. She has successfully led three earlier phases of what has now become a truly global effort. Dr Udén is a researcher in the area of gender studies and engineering science, with a focus on applied engineering and sustainable development.

**Session Chair:** **Michael Nilsson** is general business manager at Centre of Distance-spanning Technology. CDT is a known actor in the Living Labs movement and was involved in the staging of the N4C project. Mr Nilsson is currently the coordinator of the FP7 support action FIREBALL, that seeks to exploit the linkage between Smart cities, Living Labs and Future Internet <http://www.fireball4smartcities.eu>

**Session Chair:** **António Cunha** is the vice director of Laboratory of Automatics and Systems at the Instituto Pedro Nunes. He has led the N4C System Integration work package and is a spokesperson for considering technical, business and end user perspectives together. He has the vision of extending results from European research to Portuguese speaking developing regions in Africa and South America.

**Chat Editor:** **Caroline Wamala** has experience within ICT for development, and pays particular attention to perspectives on gender. In December 2010 she defended her doctoral thesis, in gender and technology. Currently working as a researcher at Luleå University of Technology, her research gives attention to the influence of the cultural environment on technology adoption and use.

**A heartfelt welcome to the N4C final conference!**

**Questions?** Please contact [maria.uden@ltu.se](mailto:maria.uden@ltu.se) or [caroline.wamala@ltu.se](mailto:caroline.wamala@ltu.se)

