

International Telecommunication Union

# Report of the Third ITU-T Kaleidoscope Academic Conference

## Beyond the Internet?

Innovations for future networks and services  
Pune, India, 13-15 December 2010

[www.itu-kaleidoscope.org/2010](http://www.itu-kaleidoscope.org/2010)

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**Report of the Third ITU-T Kaleidoscope Academic Conference**  
**“Beyond the Internet? – Innovations for future networks and services”**  
*Pune, India, 13 - 15 December 2010*

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## 1. Introduction

Subsequent to an initial invitation from the Indian administration to host the Kaleidoscope conference (K-2010), the following cluster of events took place in Pune, India, from 13 to 17 December 2010.

- [ITU Kaleidoscope 2010](#) (13-15 December 2010);
- [Standardization Tutorial](#) (16 December 2010);
- [ITU IPTV-GSI event](#) (13-17 December 2010);
- [ITU IPTV Interoperability event](#) (14-17 December 2010): Interop testing (14-15 Dec), Interop Showcase (16-17 Dec), IPTV Workshop (17 Dec, with a Panel moderated and broadcast by Bloomberg TV);
- [Global ICT Standardization Forum for India \(GISFI\) Standards meeting](#) (13 - 15 December 2010);
- [MyFIRE project event](#) (16-17 December 2010)

The Indian host, Sinhgad Technical Education Society (STES), provided excellent facilities, both in terms of logistics and financial support, considering that they also hosted for the whole week the coffee breaks, the lunches and two evening receptions for all participants.

## 2. ITU-T Kaleidoscope 2010 overview

The event was held at the kind invitation of the Ministry of Communications and Information Technology of India, and hosted by the **Sinhgad Technical Education Society (STES)**, Narhe Campus, Pune, Maharashtra, India. The theme of this year: “**Beyond the Internet? – Innovations for future networks and services**” generated great interest in the academic community worldwide.

Kaleidoscope 2010 was **sponsored** by [Cisco](#), [Nokia Siemens Networks](#) and [MYFIRE](#). The sponsors’ support allowed ITU also to award prizes to the best papers.

Kaleidoscope 2010 was organized in **partnership** with the Global ICT Standardization Forum for India ([GISFI](#)), the [ITU-APT Foundation of India](#), and the [CMAI Association of India](#). These partnerships greatly helped to increase the local participation. It is highly encouraged to establish similar partnership with local institutions for K-2011 in South Africa.

Not only Kaleidoscope 2010 but all the events that took place in Pune were very well organized. In this regard, a special recognition goes to the host institution (STES) and the **Ministry of Communications and Information Technology of India**, for the excellent logistics provided.

A substantial preparatory process is required for a Kaleidoscope conference. This process involves some TSB staff, the Kaleidoscope Organizing Committee (OC) and the Kaleidoscope Programme Committee (PC) throughout the whole year.

A **special thanks** goes to Yoichi Maeda (NTT and TTC, Japan), General Chairman of this year’s edition as well as the previous two editions of Kaleidoscope. He has made a tremendous contribution to the establishment of Kaleidoscope as a permanent feature of ITU-T and in bringing academia into the ITU. In addition, special appreciation goes to the Programme Committee Chair, Mostafa Hashem Sherif (AT&T, US), for his invaluable support and wise guidance to the Programme Committee. He ensured transparency through the double-blind peer-review process, which one more time provided a high quality conference programme. Also, Mr Sherif kindly chaired the meeting of the Award Committee members, which selected the winners of the best papers’ awards. See more information below and at: [http://www.itu.int/dms\\_pub/itu-t/oth/29/04/T290400000700900PDFE.pdf](http://www.itu.int/dms_pub/itu-t/oth/29/04/T290400000700900PDFE.pdf).

The **Management** of Kaleidoscope 2010 comprised **19 Organizing Committee** members (<http://itu.int/ITU-T/uni/kaleidoscope/2010/orgcom>), and **159 Programme Committee** members (<http://itu.int/ITU-T/uni/kaleidoscope/2010/progcom>), who are international recognized experts from academia, research institutes and private sectors.

Some numbers related to the event's programme, which is available at <http://www.itu.int/ITU-T/uni/kaleidoscope/2010/programme.html>, and the event [call for papers](#), which benefited of the [IEEE Communications Society](#) Technical Co-Sponsorship, are reported below:

- 115 Papers submitted for review
- 37 Papers accepted for publication and presentation (23 Lecture / 14 poster)
- Four Invited papers
- Three Keynote speakers
- Two Special sessions:
  - Jules Verne's corner
  - Standards corner
- One Local University Exhibition

**329 participants** registered, but many more attended K-2010. In particular, the Opening Plenary was attended by more than 500 participants. Compared to the previous events, K-2010 had great local resonance (79% of the audience came from India). It included also worldwide participation from 24 countries, with second and third country's representation respectively from Japan (11) and USA (7). However, getting a visa to enter India was difficult; international participation (especially from China and Iran) would have been even wider otherwise. In particular two presenters could not attend the conference due to visa problems. However, they were able to present their work remotely via teleconferencing.

Some **statistics** on attendance are available in pdf format on the event webpage at: [http://www.itu.int/dms\\_pub/itu-t/oth/29/04/T290400000700910PDFE.pdf](http://www.itu.int/dms_pub/itu-t/oth/29/04/T290400000700910PDFE.pdf)

Live **video and audio webcast** was made available and about 100 people (in average) were connected remotely via the webcast during the whole conference. The archived webcast will be made available on the Kaleidoscope 2010 [web page](#).

**Photos** of the conference were taken by the host professional photographer and are made available online from [K-2010 webpage](#) via the [flickr](#) site ([http://www.flickr.com/photos/malcolm\\_johnson/collections/72157625748183387/](http://www.flickr.com/photos/malcolm_johnson/collections/72157625748183387/))

**The authors of the winning papers** shared the prize fund of USD\$10,000. The winners are reported below:

- 1st price (5,000 USD) "*A user-centric approach to QoS regulation in future networks*", presented by Eva Ibarrola (University of the Basque Country, Spain), co-authored by Fidel Liberal<sup>1</sup>, Armando Ferro<sup>1</sup>; Jin Xiao<sup>2</sup> (1University of the Basque Country, Spain; 2University of Waterloo, Canada).
- 2nd price (3,000 USD) "*How can an ISP merge with a CDN (Content Delivery Network)?*", presented by Kideok Cho (Seoul National University, Korea), co-authored by Hakyung Jung, Munyoung Lee, Diko Ko, Taekyoung Kwon, Yanghee Choi (Seoul National University, Korea).
- 3rd price (2,000 USD) "*Introducing elasticity and adaptation into the optical domain toward more efficient and scalable optical transport networks*", presented by Masahiko Jinno (NTT, Japan), co-authored by Yoshiaki Sone, Osamu Ishida, Takuya Ohara, Akira Hirano, Masahito Tomizawa (NTT, Japan)

In addition to the prize pool, ten entrants - Kideok Cho, Rakesh Jha, Pranoti Bansode, Pankaj Chand, Klemen Peternel, Labonnah F. Rahman, Mohammadmajid Hormati, Arnupharp Viratanapanu, Rahamatullah Khondoker, and Muzahid Hussain - received a **Young Author Recognition Certificate**.

### 3. Kaleidoscope 2010 conference programme

**The Opening Ceremony** included the inaugural speech from the local authority, the welcome speeches from the host and from the K-2010 partners, and the opening address from the TSB Director. The conference programme was held according to the Indian protocol, which foresees a Master of Ceremony felicitating the Keynote speakers and Session Chairs with flowers, coconuts and the Indian traditional scarf. This protocol was very welcomed and introduced the participants into the cultural traditions of India. In addition, the **three evening receptions**, especially the traditional show organized by the students of the host campus (STES), gave the opportunity to enhance cultural exchanges and enrich the knowledge of India.

This year's **keynote speeches** were delivered by:

- [Uday B. Desai](#) (Director, Indian Institute of Technology, Hyderabad, India), "*Modern academia: teaching, research, development, patents and standards*", [[ABSTRACT](#)].
- [Tadao Saito](#) (Professor Emeritus, University of Tokyo, Japan), "*Vehicle communication: a future telecommunication market*" [[ABSTRACT](#)].
- [Detlev Otto](#) (CTO, Nokia Siemens Networks, Germany), "*Future of communications? The individual user experience*" [[ABSTRACT](#)].

This year's **invited papers** presented very interesting topics which set the base for the conference discussion:

- [Kavé Salamatian](#) (Professor, Université de Savoie, France), "*Toward a polymorphic future internet: a networking science approach*" [[ABSTRACT](#)].
- [Peter Wentworth](#) (Professor, Rhodes University, South Africa), "*Can computational thinking reduce marginalization in the future internet?*" [[ABSTRACT](#)].
- [Arun Mehta](#) (President, Bidirectional Access Promotion Society, India), "*Challenges the Internet poses to the policymaker*" [[ABSTRACT](#)].
- Hiroshi Yasuda (Professor, Tokyo Denki University, Japan), "*A vision on the information and communication technologies using cloud computing environment*" [[ABSTRACT](#)].

The various papers were presented at the **Lecture sessions**.

The presentation of Brad Biddle (Arizona State University, USA) "*How many standards in a laptop? (and other empirical questions)*" addressed the complex issue of multiple standardization bodies and the IPR discussions about standards. Mr Biddle will be invited to present his work at the TSB Director **IPR ad hoc group**.

Also worth to mention the presentation of Pankaj Chand (Independent Researcher, India) "*A New Protocol Layer for User Space Functionality*", which introduced a new layer of protocols into the Internet protocol stack to support future usage of the Internet. As the core Internet architecture did not evolve much since its inception, in order to achieve pervasive and ubiquitous computing, the author proposes an innovative concept that considers the User Space as a significant entity in the Internet model and aims to standardize it. **ITU-T Study Group 11** might like to consider this proposal.

Additional relevant **conclusions** from the technical sessions, as drafted and presented by the Session Chairs, are available online in [PDF](#) format at [http://www.itu.int/dms\\_pub/itu-t/oth/29/04/T290400000700990PDFE.pdf](http://www.itu.int/dms_pub/itu-t/oth/29/04/T290400000700990PDFE.pdf).

The list of all presented papers, including **presentations, abstracts and author's biographies**, are available for download from the **Programme** web page at: <http://www.itu.int/ITU-T/uni/kaleidoscope/2010/programme.html>.

All the papers are assembled into the **Conference Proceedings publication**, which is freely available for download at: <http://www.itu.int/pub/T-PROC-KALEI-2010/en>. They are also available from the **IEEE Xplore** online repository (<http://ieeexplore.ieee.org/xpl/mostRecentIssue.jsp?punumber=5673319>).

The **Poster session**, held on the evening of 13 December, was attended by a couple hundred people. It presented 13 out of the 14 papers allocated to this session. In fact, the late arrival of one of the authors (Muzahid Hussain), due to unforeseen circumstances, did not allow him to present his paper.

During the conference, Malcolm Johnson gave emphasis to the newly established **membership category for academia**. It generated great interest and, two institutions participating in the Kaleidoscope were among the first to join ITU: “*STES*” from India and “*Aalborg University*” from Denmark. The full list of the first Academia members of ITU is reported in **table 1**.

**Table 1**

COUNTRY	NAME OF INSITUTION
Tunisia	Ecole Nationale d'Ingénieurs de Tunis (ENIT)
Tunisia	Université de Sfax
Tunisia	Sup Comm
China	Tsinghua University
China	Nanjing University of Posts and Telecommunications
Algeria	Institut National des Télécommunications et des Technologies de l'Information et de la Communication (INTTIC)
Japan	Waseda University
Denmark	Center for Teleinfrastruktur - Aalborg university
India	Sinhgad Technical Education Society (STES)

The event included **two special Sessions** “Standards corner” and “Jules Verne’s corner”. Both sessions were well attended and appreciated by the audience. It is recommended to organize similar sessions in future events.

The **Standards corner** provided highlights on standardization activities in ITU-T relevant to the conference theme, including IPTV-GSI, FGFN, MyFIRE project and Future Access Networks. It also introduced the participants to the ITU-T standardization activities and to a related industry perspective (by Mostafa Sherif, AT&T). For additional info, the **programme** of the Standards corner can be found at: <http://www.itu.int/ITU-T/uni/kaleidoscope/2010/standards.html>. K-2010 was also a venue to introduce the **Standardization Tutorial** which took place on the 16 December and was organized by TSB in partnership with STES and GISFI with the support of the Korean Communications Commission (KCC) (see TSB’s TSAG TD on Bridging the Standardization Gap).

The first **Jules Verne's corner (JVC)**, was held in Pune, India, on 14 December 2010 for one hour and a half and was attended by some 200 people. This initiative intends to include in the Kaleidoscope programme a session dedicated to the views of **extremely advanced minds**, able to think of 50 years and beyond as Jules Verne himself did in his literature. JVC has been thought up as “the” place for visionaries, science fiction writers, journalists, movie directors and anybody else

who is able to imagine an unpredictable future, putting forward inspiring, revolutionary ideas. The objective is to share thoughts that might help develop communication concepts to generate the spark that could “**make possible the impossible**” during the second half of the XXI century.

The JvC is structured as a sort of panel/talk show, with speakers seated in a living-room style on the stage to better stimulate an open discussion with the audience. A video, developed by TSB for the purpose and shown before the discussions, highly impressed the participants.

The programme (and presentations) of this [JvC Session](http://www.itu.int/ITU-T/uni/kaleidoscope/2010/julesverne.html) can be found at: <http://www.itu.int/ITU-T/uni/kaleidoscope/2010/julesverne.html>. The topics spanned from ICTs and future internet networks to the mapping of signals in a dense wireless four-dimensional space-time domain, to the detection of information from the brain by analyzing activities of neurons and facing their “time-variable” characteristics, and to a “Rigorous Pseudo Scientific Demonstration” to use time machines and to transport material.

The event generated a lot of interest in the audience, who was fascinated and enthusiastic with the possibility to float and dream between science and science-fiction and thought about this new idea as an ITU way of “making possible the impossible”.

The next edition titled “The Chip in the Brain” has been launched to be included in the K-2011 programme. A [call for abstract](http://www.itu.int/dms_pub/itu-t/oth/29/05/T29050000020001PDFE.pdf) is available from the web page at [http://www.itu.int/dms\\_pub/itu-t/oth/29/05/T29050000020001PDFE.pdf](http://www.itu.int/dms_pub/itu-t/oth/29/05/T29050000020001PDFE.pdf).

The participants received a CD including the electronic version of the **proceedings**. In addition, TSB ensured distribution of some **promotional material** (flyers, brochures and CDs on ITU-T activities) setting up a stand in the local University Exhibition. MyFIRE, as a K-2010 sponsor, also had an exhibition stand.

The [Local Universities exhibition](#) provided insight into their activities and was well attended. The exhibitors were as follows:

- Anna University, MIT Campus, Chennai
- Telecom Centres of Excellence, New Delhi
- College of Engineering, Pune (COEP)
- Sinhgad College of Engineering, Sinhgad Technical Education Society's, Pune
- Bharati Vidyapeeth Deemed University, Pune
- MIT School of Telecom Management, Pune

#### 4. ITU-T Kaleidoscope 2011

ITU-T Kaleidoscope 2011 “*The Fully Networked Human - Innovations for future networks and services?*” was launched in Pune via presentation to the audience and flyers distribution. The conference will take place in South Africa, in December 2011. Mostafa Hashem Sherif (AT&T, US) has kindly accepted to serve as General Chairman of the conference, and Kai Jakobs (RWTH Aachen University, DE) will head the Programme Committee.

Kaleidoscope 2011 is calling for original, academic, technical papers (**submission of full paper proposals’ deadline: 15 May 2011**) offering innovative and bold approaches to foster the research and development of human-centric ICTs as we move towards future networks and services.

Additional information, including sponsorship opportunities, papers’ submission and awards, as well as the [event's poster](http://www.itu.int/ITU-T/uni/kaleidoscope/2011/), is available at the conference webpage: <http://www.itu.int/ITU-T/uni/kaleidoscope/2011/>.

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