
Emerging Technologies Committee, IEEE Communication Society

Current Status and Action Items in 2014

Zhisheng Niu

Committee Chair

June 2014

Committee Members in 2014



Zhisheng Niu
(Chair, 2014-15)



Jeff Andrews
(2012-14)



Joao Barros
(2012-14)



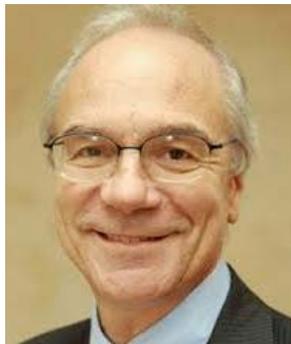
K.C. Chen
(2013-15)



Stefano Galli
(2013-15)



James W-K. Hong
(2014-16)



Roberto Saracco
(2014-16)



Sean Moore
(EiC, ComMag)



Muriel Medard
(EiC, JSAC)



Mark Karol
(SPC Representative)

Existing Technical Sub-Committees 2014

Technical Subcommittees	Created	Current Chair
1. FiWi: Fiber-Wireless Integration (<i>name requesting to be changed</i>)	2006	Hussein Mouftah
2. Nano-Scale, Molecular & Quantum Networking (<i>newly merged</i>)	2008	Andrew Eckford
3. Social Networks	2010	Kwang-Cheng Chen
4. Vehicular Networks & Telematics Applications	2010	Tao Zhang
5. Cable Networks & Services	2011	Mehmet Toy
6. Cloud Communications & Networking	2012	Masum Z. Hasan
7. Innovation & Standards in Information & Communication Technologies (ISICT)	2012	SM Hasan
8. Internet of Things (IoT)	2012	Latif Ladid
9. Smart Grid Communications	2012	Petar Popovski
10. 5G Mobile Wireless Internet	2013	Latif Ladid
11. Autonomic Communications	2013	Raouf Boutaba
12. Situation Management	2013	Gabriel Jakobson
13. Software Defined Networking & Network Function Virtualization	2013	Ciprian Popoviciu

Existing Technical Committees in 2014

1. Ad Hoc & Sensor Networks
2. Cognitive Networks
3. Communications & Information Security
4. Communications Quality and Reliability
5. Communications Software
6. Communications Switching & Routing
7. Communications Systems Integration & Modeling
8. Communication Theory
9. Computer Communications
10. Data Storage
11. e-Health
12. Green Communications & Computing (*newly elevated*)
13. Information Infrastructure & Networking
14. Internet
15. Multimedia Communications
16. Network Operations & Management
17. Optical Networking
18. Power Line Communications
19. Radio Communications
20. Satellite & Space Communications
21. Signal Processing & Communications Electronics
22. Transmission, Access, & Optical Systems
23. Wireless Communications

Subcommittee Name Change Request *(done)*

- **“Integrated Fiber & Wireless Technologies” subcommittee changed to “FiWi: Fiber-Wireless Integration”**
 - Requested by Hussein Mouftah, the subcommittee chair
 - Two main reasons:
 - ✓ to better reflect its activities defined in its Charter;
 - ✓ to avoid the misunderstanding that there may be overlap with the activities usually carried out in the area of FSO (Free Space Optics)
 - ETC committee reviewed the request and **7** out of **9** ETC members have replied to me. **4** members agreed without any modification and **3** members basically agreed but with some concerns:
 - ✓ Is that a right way to have an acronym in the committee names?
 - ✓ Whether FiWi is a commercial term, perhaps copyrighted?
 - The ETC chair has summarized all the comments from the ETC members and submitted it to VP-TA for approval.

Action Item#1: ComMag Article

- First article published on Dec. 2013 issue (*as below*) showcasing ETC and its subcommittees. The goal of the article is to attract new members
- A standing article to be published on Oct. 2014 issue and the years after (*already agreed with EiC of ComMag*)
- **Action items:**
 1. *ETC chair responsible for the content with the helps from whole ETC*
 2. *Content will be discussed in Sydney meeting (June 11)*

EMERGING TECHNOLOGIES

PROMOTING EMERGING TECHNOLOGIES WITHIN COMSOC

BY ANDREA GOLDSMITH

It is my great pleasure to write this first annual article showcasing the Emerging Technologies Committee (ETC) within ComSoc. The ETC was formed in 2006 to identify and promote new technology directions in the broad field of communications and related areas. Indeed, as communications becomes more interdisciplinary and its applications more diverse, the ETC's goal is to bring these cutting edge technologies under the purview of ComSoc through a wide range of activities.

conomic techniques will allow networks to learn and adapt to their environment as well as to the demands of evolving applications and services, thereby providing significantly greater flexibility and robustness in network control and management than exists in networks today.

Cable Networks and Services: The mission of this subcommittee is to develop next-generation cable network technology from the creation of new applications to improving performance of the

address this important challenge, this subcommittee focuses on research, development, and standardization of green, communications and computing related to energy efficiency, resource efficiency, and environmental maintainability. The subcommittee addresses all aspects of this broad and interdisciplinary field, including green optical, wireless, and ad-hoc network design; energy-efficient circuits, devices and terminals; green data centers and cloud computing; energy-harvesting, hierarchi-

Proposed Content for ComMag Article

- **Showcase two new subcommittees** (*missed in 2013*)
 - 5G Mobile Wireless Internet
 - Software Defined Networking & Network Function Virtualization
- **ETC summarizes ETC activities over previous year**
 - Special JSAC issues, new initiatives, new subcommittees formed, etc,
- **Selected subcommittees summarize their activities**
 - Key results and/or activities in 2013
 - Action plans in 2014
- **Any others?**

Action#4: JSAC e-issue on ETC in 2014 (*on planning*)

- After an elaborative discussion with VP-Pub, Dir of Pub, and EiC of JSAC, it comes to the following agreements:
 1. It should be a **bonus** JSAC special issue, **once** a year (not two), published **both** in print and electronically;
 2. **All-invited** papers with normal reviews, cutting-edge and/or interdisciplinary;
 3. Showcasing **4** subcommittees with **4** papers in each one;
 4. ETC is the editorial board for the journal with support from the subcommittees;
 5. The selected ETC subcommittee chairs invite **4-6 extended abstracts**, no more than 2 from officers to encourage member submissions;
 6. ETC informs authors of selected abstracts to prepare papers,
 7. Paper reviews (*initial review and revisions*) done by subcommittee and ETC
 8. Final acceptance by ETC
 9. Publication in **December** each year

Action#4: **JSAC bonus issue on ETC in 2014** (*on planning*)

- **A call for self-nominations inside the ETC has been released on May 15 and so far 3 subcommittees have shown their interests in 2014 issue**
 - Internet of Things (IoT) (Latif or Antonio)
 - Social Networks (KC Chen)
 - Innovation and Standards in Communication and Information Technologies (ISICT) (Hasan SM)
 - **Green Communications and Computing (Jinsong Wu)?**
- **Suggested guest editorial team**
 - Zhisheng Niu, Stefano Galli, Latif Ladid, KC Chen, Hasan SM, Jinsong Wu?
- **Proposed deadlines** (*Publication: Dec. 2014*)
 - Paper submission: July 10
 - Paper acceptance: Aug. 20
 - Paper revision: Sep.10
 - Camera ready: Sep.30

Sub-TC's Activity Report and Action Plan

- **Cable Networks and Services (Mehmet Toy)**

1. Guest Editorial in IEEE Comm. Magazine about DOCSIS 3.1. The title is "**Next Generation Cable Networks with DOCSIS® 3.1 Technology**".
2. A panel in IEEE Globe 2014. The title is "**Cable Industry Access Technologies**".
3. Keynote speech in "**Next Generation Optical Networks**" Conference
4. 4. Paper presentation in "Complex Adaptive Systems Conference"
5. Continue to support/lead standards activities in IEEE, MEF, Cloud Ethernet Forum
6. A panel in Globecom 2015

Sub-TC's Activity Report and Action Plan

- **Autonomic Communications (Raouf Boutaba)**
 - **Activities in ComSoc Sponsored Major Conferences**
 - ✓ NOMS2014, ICC2014, Globecom2014, IM2015
 - **Activities in ComSoc co-sponsored, technically co-sponsored Symposia and workshops**
 - ✓ 10th IEEE/ACM/IFIP International Conference on Network and Service Management (CNSM2014)
 - **Activities in other IEEE conferences/workshops**
 - ✓ The AIMS workshop, the LCN conference, and several others.
 - **Activities in publications**
 - ✓ IEEE Transactions on Network and Service Management (TNSM), IEEE Communications Magazine (COMMAG), ComSoc/KICS Journal of Communications Networks (JCN), Elsevier Computer Networks, IEEE Transactions on Mobile Computing
 - **Committee meetings**
 - ✓ A meeting of the subcommittee is planned to take place at the CNSM 2014 in Rio de Janeiro, November 2014

Other Activities

- **Other ways to showcase ETC** (*adding more value to Sub-TCs*)
 - **Awards?** (*award for creating and/or promoting an emerging field?*)
 - **Distinguished lectures?** (*to work closely with the DL Selection Committee*)
 - **Special panels or invited papers** *at ComSoc workshops and conferences*
 - **Tutorial videos & Keynote talks?** (*also posted on the websites of STCs*)
- **Encouraging more Sub-TCs, e.g.,**
 - **Micro-communications** (*we are already looking at sensors. In the coming years we will see a trend towards zero consumption and that will require new approaches to communications*)
 - **Future network** (*incorporate computation, storage, and big data into the network*)
 - **Data center networking or on-chip networking**
 - **Wireless Network Convergence** (*e.g., outdoor and indoor*)
 - **Biomedical Communications** (*Brain-Machine Interface, In-Body Networks, compliments e-Health, ...*)
 - **Any others?**

Other Activities

- **Lifecycle of STCs**
 - What's a typical lifecycle of an *emerging* area in our field: 3 years? 5 years?
 - Introducing an *Elevate-or-Closedown* mechanism?
- **Mailing list for STCs** (*officers and anyone else who wants to join*)
 - Activate the interactions among difference STCs
- **Incubate new publications in crucial communications and networking research areas and preside over them**
 - solicit TCs and STCs to suggest topics
- **Other?**

P&P – Formation of Sub-TCs

- **Members of the Society interested in organizing new technical groups should submit a written proposal to VP-TA, copied to ETC chair, which include following sections:**
 - Name of the proposed sub-committee
 - Scope of technical activities to be pursued
 - Rationale for organizing the sub-committee (e.g. activities currently pursued by other technical groups or related societies)
 - Proposed activities
 - Proposed officers (chair, vice-chair, secretary, and any other positions)
 - Proposed budget for the first two years
 - Signature of 10 IEEE members interested in becoming members of the sub-committee
- **The VP-TA will evaluate the proposal in consultation with ETC chair and members of TAC and make decision to approve or reject the formation of the sub-committee.**
- **The VP-TA, together with ETC chair and TAC members, will annually review the progress of the sub-committee and make decisions at the beginning of each year:**
 - Continuation of the sub-committee
 - Termination of the sub-committee (except the sub-committees that have been formed for less than 1 year)
 - Recommend that the status of the sub-committee be changed to that of a full-fledged technical committee, in accordance with the Society's Constitution and Bylaws.
- **If ETC recommends that the status of the sub-committee be changed to that of a full-fledged TC, the following should be carefully considered.**
 - the new TC areas/topics are broad enough to merit creation of a TC.
 - the new TC does not have too much overlap with an existing TC or another IEEE Society

Subcommittee Evaluation Process

- **Goals**

- Ensure active involvement of officers and members
- Ensure sufficient level of activity promoting the emerging technology
- Provide actionable feedback on weaknesses with deadlines for addressing them
- Identify subcommittees ready for a transition (elevation, merge, disband, probation)

- **Evaluation Procedure**

- **Subcommittees submit a report on committee activities prior to ICC/Globecom**
- **Websites to be updated at least twice per year, before ICC/Globecom**
- ETC members evaluate the subcommittees based on the reports and websites
- 5 criteria: visibility, participation, activities, technical area, and future plans/potential impact
- Weaknesses identified with deadlined action items to address them
- **Evaluation results (*continue, merge, disband, probation*) will be announced at Globecom**
- New subcommittees were not evaluated but will receive feedback on their reports

- **Primary weaknesses identified**

- Lack of involvement by officers
- No membership involvement
- Outdated website
- Lack of activities
-

P&P – Sub-TC Evaluation *(updated in 2013)*

- **Each subcommittee required to submit an annual report to the ETC for review**
- **Each subcommittee required to keep its website up to date, including officers/activities/meetings**
- **Subcommittees required to organize at least one meeting per year for all members**
 - Ideally at an appropriate workshop or conference
 - Can be a virtual meeting or conference call
 - Attendees must be included in annual report
- **Subcommittee reports and websites used to generate an annual evaluation by the ETC**
 - Goal is to identify strengths and make recommendations
 - Each year ETC decides if subcommittee should continue, merge, disband, or be put on probation (*Note: not for subcommittees in 1st year*)



Evaluation Criteria

- **Visibility**
 - Website (up-to-date, content)
 - Visibility outside of website (due to subcommittee activities).
- **Participation**
 - Officers (engagement and responsiveness)
 - Membership (number of members, geographic reach, participation in activities)
- **Activities**
 - Journal participation (sponsorship or co-sponsorship of journals) and quality of the journal
 - Participation in workshops and symposia, and the success/quality/attendance of these events.
 - Standards activities
 - Other activities
 - Meetings held (and number of members attending) and meetings attended
 - Tutorials
 - Awards and distinguished lecturers
- **Technical area**
 - Importance of technical area (is this a lasting area that should become a technical committee eventually, a passing “hot topic” with a limited lifespan, or something in between?)
 - Uniqueness of technical area (differentiation from existing technical committees)
- **Future plans and potential impact**
 - Future plans
 - Potential impact



Process for subcommittee elevation to TC

- **Subcommittees that appear ready for elevation identified as part of their evaluation**
 - Must be in existence for at least 2 years
 - Request for elevation can also be made independent of evaluation
- **To start the process, subcommittee makes a formal request for elevation to the ETC**
 - Supporting material required as part of the request
 - ✓ Includes questionnaire about elevation, draft procedure and policy document for the TC, and updated report
 - The subcommittee must also have an up-to-date website to make an elevation request

Summary

- **Expectations for ETC subcommittees elevated**
- **Subcommittee evaluation process should help to maintain vibrant and active subcommittees**
- **JSAC bonus issue for 2014 and beyond formulated**
- **ETC visibility has improved through magazine article and JSAC special issue: can improve further**
- **Need dynamic process of defining and nurturing new subcommittees.**

See you all in Austin!