

IFIP WG6.6 & IEEE CNOM

Joint Meeting

(@CNSM 2021, online)



October 25, 2021



Meeting Overview

1. Overview of CNOM and IFIP WG6.6
2. Conference statistics and upcoming events
3. Journals, their impact factors and upcoming special issues
4. Update of Network and Service Management taxonomy
5. CNOM SIGs (Special Interest Groups): overview and proposals
6. CNOM awards and award committees
7. IEEE ComSoc distinguished lecturer program
8. IEEE ComSoc student competition
9. Opportunities for young researchers

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1. Overview of CNOM and IFIP WG6.6 Groups

CNOM

IEEE organized into Societies

→ **IEEE Communication Society (ComSoc)**

composed of Technical Committees

→ **Committee on Network Operation and Management (CNOM)** deals with network operations and network/service management, promotes and represents this community



<https://cnom.committees.comsoc.org>



CNOM

CNOM officers (05/2021 → 05/2023)

- Chair: **Noura Limam**, University of Waterloo, Canada
- Vice-chair: **Marinos Charalambides**, Huawei Technologies, Belgium
- TPC chair: **Carol Fung**, Virginia Commonwealth University, USA
- Secretary: **Carlos Raniery P. dos Santos**, Federal University of Santa Maria, Brazil



<https://cnom.committees.comsoc.org/about-cnom/members/officers/>

CNOM

How to join?

- Subscribe to the **CNOM mailing list**
- Become an **active member** by satisfying at least one of these conditions in the last two years:
 - Attended (physically or remotely) at least one CNOM meeting
 - Served as TPC or OC member of NOMS/IM, CNSM, APNOMS, LANOMS
 - Served as an editorial board member or editorial advisory board member of JNSM, IJNM, or TNSM

<https://cnom.committees.comsoc.org/about-cnom/how-to-join/>



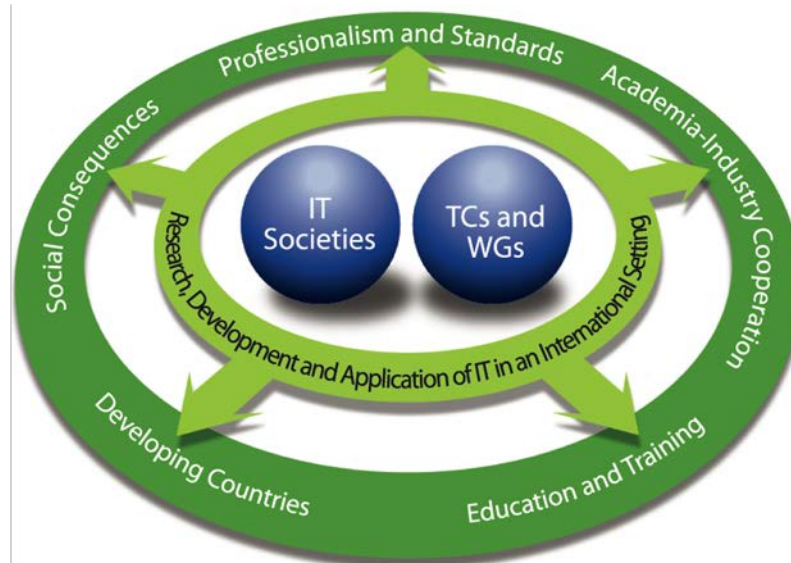
ifip
the leading edge of
information technology

**TC6
WG6.6
Network &
Service
Management**



ifip

- Non-governmental, not-for-profit umbrella organization of national learned societies working in the field of Information Technology
- Established in 1960 under the auspices of UNESCO as a result of the first World Computer Congress held in Paris in 1959





ifip

Technical Committees

- TC1** Foundations of Computer Science
- TC2** Software: Theory and Practice
- TC3** Education
- TC5** Information Technology Applications

TC6 Communication Systems

- TC7** System Modeling and Optimization
- TC8** Information Systems
- TC9** ICT and Society
- TC10** Computer Systems Technology
- TC11** Security and Privacy Protection
- TC12** Artificial Intelligence
- TC13** Human-Computer Interaction
- TC14** Entertainment Computing



Burkhard Stiller
TC6 Chair



ifip

Technical Committee TC6

WG6.1 Architectures and Protocols for Distributed Systems

WG6.2 Network and Internetwork Architectures

WG6.6 Management of Networks and Distributed Systems

WG6.7 Smart Networks

WG6.8 Mobile and Wireless Communications

WG6.9 Comm. Systems for Developing Countries

WG6.10 Photonic Networking

WG6.11 Communication Aspects of the E-World

WG6.12 Services-Oriented Systems



Rémi Badonnel
WG6.6 Chair



WG6.6 Activities

- Joint work with IEEE CNOM
- Open platform for community building, animation, promotion and structure setting
 - Co-organizing conferences
 - Promoting journals
 - Sponsoring excellence
 - Best paper awards (3-4 per year)
 - Student travel grants (+/- 10 per year)
- All the WG6.6 / CNOM involvement is volunteered
- On the IFIP WG6.6 side: encouraging the alignment of the WG6.6 supported conferences to the TC6 strategy on the **Open Digital Library** (dl.ifip.org)



What does « WG6.6 Member » mean?

- Actively volunteer to
 - Contribute to reviews of the community conferences, workshops and journals
 - Encourage and do submissions to the community events and journals
 - Join TPCs and OCs
 - Be active in the mailing-lists
 - Participate to our conferences and meetings
- Contact: IFIP WG6.6 Officer
 - Rémi Badonnel – TELECOM Nancy, France (since 04/2019), badonnel@loria.fr

How to get involved?

- Participate to the WG6.6 meetings in our conferences
 - CNSM, NOMS, IM, TMA
- React and talk on the mailing list (222 pers.)

ifip_nm@lists.utwente.nl

- Visit our IFIP WG6.6 website

wg66.ifip.org

- Follow us on twitter

[@ifipwg66](https://twitter.com/ifipwg66)



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2. Conference statistics and current/upcoming events

2. Conference Statistics

	Submitted	Accepted (full)	A.R.	Attendees	Proceedings
ICIN 2021	65	13	20%	92	Xplore
IM 2021	191	46	24.1%	335	IFIP DL, Xplore
Networking 2021	158	41	25.9%	226	IFIP DL, Xplore
Netsoft 2021	89	18	20.2%	276	Xplore
ITC 33	27	11	40.7%	144	IFIP DL, Xplore
TMA 2021	40	18	45%	115	IFIP DL, Xplore
NoF 2021	41	12	29.3%	65	Xplore
CNSM 2021	93	18	19.4%	178	IFIP DL, Xplore

2. Current and Upcoming Events

- CNSM 2021 (IFIP/IEEE/In Coop. with ACM SIGCOMM)
 - *October 25-29, 2021, Izmir, Turkey*
- ICIN 2022 (IEEE)
 - *March 7-10, 2022, Paris, France*
- NOMS 2022 (IEEE/IFIP)
 - *April 25-29, 2022, Budapest, Hungary*
- TC6: Networking 2022 (IFIP/IEEE)
 - *June 13-16, 2022, Catania, Italy*
- NetSoft 2022 (IEEE)
 - *June 27-July 1, 2022, Milan, Italy*
- TMA 2022 (IFIP)
 - *End of June, Enschede, The Netherlands*
- ITC 34 (IFIP/IEEE/In Coop. with ACM SIGCOMM)
 - *September 14-16, 2022, Shenzhen, China*
- APNOMS 2022 (IEEE)
 - *September 28-30, 2022, Takamatsu, Japan*
- NoF 2022 (IEEE)
 - *Not yet announced*

CNSM 2021

- October 25 – 29, 2021, Izmir, Turkey
- Chairs
 - General Chairs
 - Prosper Chemouil, Mehmet Ulema
 - TPC Chairs
 - Muge Sayit, Stuart Clayman



<http://cnsm-conf.org/2021>

Virtual 2021
Edition



ICIN 2022

- March 7-10, 2022, Paris, France
- Chairs
 - General Chairs
 - Mohamed Faten Zhani,
Noura Limam
 - TPC Chairs
 - Piotr Borylo, Amina Boubendir



<https://www.icin-conference.org>

**Paper Submission
Deadline: November 1st, 2021**

Hybrid 2022
Edition



NOMS 2022

- April 25 – 29, 2022, Budapest, Hungary
- Chairs
 - General Chairs
 - Paul Varga, Lisandro Z. Granville
 - TPC Chairs
 - Alex Galis, Istvan Godor,
Noura Limam, Prosper Chemouil



<https://noms2022.ieee-noms.org>

**Paper Submission
Deadline: November 1st, 2021**



NetSoft 2022

- June 27 – July 1, 2022, Milan, Italy
- Chairs
 - General Chairs
 - Alexander Clemm, Guido Maier
 - TPC Chairs
 - Carmen Mas Machuca,
K.K. Ramakrishnan, Fulvio Risso



<https://netsoft2022.ieee-netsoft.org>

**Paper Submission
Deadline: December 15, 2021**



TMA 2022

- End of June, 2022, Enschede, The Netherlands
- Chairs
 - General Chair
 - Roland van Rijswijk-Deij,
University of Twente



<http://tma.ifip.org>



ITC 34

- September 14 – 16, 2022, Shenzhen, China
- Chairs
 - General Chairs
 - Z.-Q. Tom Luo, Zhisheng Niu
 - TPC Chairs
 - Minghua Chen, Longbo Huang,
 - Patrick Loiseau, Weina Wang



<https://itc34.org/>

**Paper Submission
Deadline: April 30, 2022**



APNOMS 2022

- September 28-30, 2022, Takamatsu, Japan
- Chairs
 - General Chair
 - Yuji Nomura, Fujitsu

APNOMS

<http://apnoms.org>



Call for Symposium Chairs and Nominations

- IEEE GLOBECOM 2023
 - Kuala Lumpur, Malaysia
 - December 4-8, 2023
- IEEE ICC 2024
 - Denver, US
 - June 9-13, 2024

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3. Journals, their impact factors, and upcoming special issues

IEEE Transactions on Network and Service Management (TNSM)

- EiC: Prof. Filip De Turck
- AEiC: Prof. Hanan Lutfiyya
- Hybrid: traditional + Open Access submissions
- Open calls + special issues
- Frequency: 4
- Current issue: Volume 18, Issue 3
- JCR Impact factor: **4.195**
- H-index: **51 (as of 10/21)**

IEEE TRANSACTIONS ON
**NETWORK AND
SERVICE MANAGEMENT**
A PUBLICATION OF THE IEEE COMMUNICATIONS SOCIETY

4.195

Impact
Factor

0.00436

Eigenfactor

0.94

Article
Influence
Score

7.9

CiteScore
Powered by Scopus[®]

<http://www.comsoc.org/tnsm/>

TNSM searchable index

Searchable index

Search entry

machine learning



Use quotation marks (" ") for exact matches

☐ 2020 (22) ☐ 2019 (11) ☐ 2018 (3) ☐ 2016 (5) ☐ 2013 (1) ☐ 2010 (1)

Author	Title	Year ↓	Issue	Keywords
Raphael Durner and Wolfgang Kellerer	Network Function Offloading Through Classification of Elephant Flows	2020	Vol. 17(2)	Hardware Software Switches
Trung V. Phan and Tri Gia Nguyen and Nhu-Ngoc Dao and Truong Thu Huong and Nguyen Huu Thanh and Thomas Bauschert	DeepGuard: Efficient Anomaly Detection in SDN With Fine-Grained Traffic Flow Monitoring	2020	Vol. 17(3)	Anomaly detection Switches Monitoring
Gaurav Choudhary and Philip Virgil Astillo and Ilsun You and Kangbin Yim and Ing-Ray Chen and Jin-Hee Cho	Lightweight Misbehavior Detection Management of Embedded IoT Devices in Medical Cyber Physical Systems	2020	Vol. 17(4)	Principal component analysis Monitoring Biomedical monitoring
Alessandro D'Alconzo and Idilio Drago and Andrea Morichetta and Marco Mellia and Pedro Casas	A Survey on Big Data for Network Traffic Monitoring and Analysis	2019	Vol. 16(3)	Big Data Sparks Data mining
Agathe Blaise and Mathieu Bouet and Vania Conan and Stefano Secci	Botnet Fingerprinting: A Frequency Distributions Scheme for Lightweight Bot Detection	2020	Vol. 17(3)	Botnet Protocols Complexity theory

Matching entries: 43 1 - 43 of 43 < >

<https://www.tnsm-overview.org/>

IEEE ComMag – Network Softwarization and Management Series

- Series Editors
 - Present: Walter Cerroni, Oscar Mauricio Caicedo Rendón, Noura Limam
 - Past: Walter Cerroni, Alex Galis, Kohei Shiomoto, Mohamed Faten Zhani
- Consolidation of:
 - Telecom Soft., Network Virtualization and Software Defined Networks
 - Network and Service Management
- JCR impact factor: **9.619**

Issue	Published	Submitted	Accepted
1	October 2020, Vol 58, No. 10	21	6
2	March 2021, Vol 59, No. 3	28	5
3	June 2021, Vol 59, No. 6	11	4
4	October 2021, Vol 59, No. 10	18	6



9.619

Impact
Factor

0.03598

Eigenfactor

2.509

Article
Influence
Score

28.4

CiteScore
Powered by Scopus

<https://www.comsoc.org/publications/magazines/ieee-communications-magazine/cfp/network-softwarization-and-management>

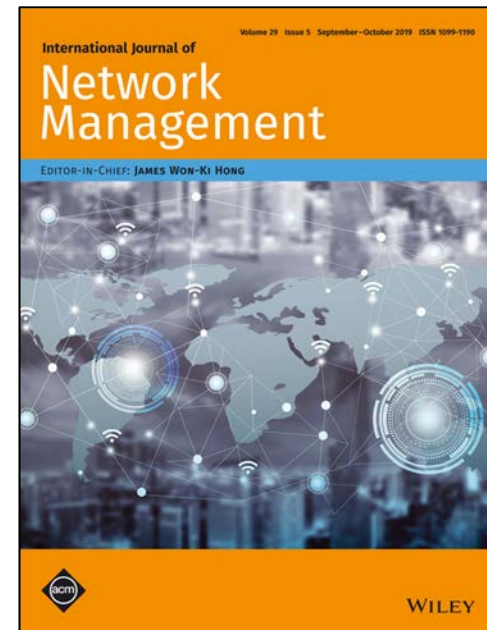
Journal of Network and Systems Management (JNSM)

- EiC: Prof. Luciano P. Gasparry
- International journal published by Springer / 4 x year
- Last issue: Volume 30, Issue 1 (January 2022)
- ISI impact factor:
 - 0.432 (2012)
 - 0.796 (2014)
 - 1.588 (2016)
 - 1.676 (2018)
 - 2.250 (2019)
 - **2.139 (2020)**
- H-index (2020): **35**
- Usage (2020): **52.948 downloads**



International Journal of Network Management (IJNM)

- EiC: Prof. James Won-Ki Hong
- AEiC: Jérôme François and Lisandro Z. Granville
- Journal published by Wiley / 6 x year (since 2011, online only)
- Current issue: Volume 31, Issue 5
- Virtual issues published every year
 - Open access for the most cited papers
- ISI impact factor:
 - 0.283 (2014)
 - 0.681 (2015)
 - 1.118 (2016)
 - 1.340 (2017)
 - 1.231 (2018)
 - 1.338 (2019)
 - **1.712 (2020)**



<https://onlinelibrary.wiley.com/journal/10991190>

IEEE Journal on Selected Areas in Communications (JSAC)

IEEE JOURNAL ON **SELECTED AREAS IN COMMUNICATIONS**

- EiC: Prof. Raouf Boutaba
- Special issues
- Frequency: 12
- Current issue: Volume 39, Issue 11
- JCR impact factor: **9.114**
- H-index: **236**

9.144 Impact Factor	0.02762 Eigenfactor	2.421 Article Influence Score	23.1 CiteScore <small>Powered by Scopus</small>
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<https://www.comsoc.org/publications/journals/ieee-jsac/cfp>

Calls and Special Issues

- TNSM
 - October 30, 2021: Recent Advances in Network Security Management
 - November 1, 2021: Recent Advances in the Design and Management of Reliable Communication Networks
- COMMAG
 - Open call: Series on Network Softwarization and Management
- JNSM
 - November 30, 2021: Blockchains and Distributed Ledgers in Network and Service Management
 - November 30, 2021: Recent Advances in Network and Service Management for Networked Extended Reality
- JSAC
 - December 1, 2021: Edge-Based Wireless Communications Technologies to Counter Communicable Infectious Diseases
 - February 15, 2022: Intelligent Blockchain for Future Communications and Networking: Technologies, Trends and Applications

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5. Update of Network and Service Management Taxonomy

5. Update of Network and Service Management Taxonomy

- Originally proposed in 2008
 - Updated in 2015 and 2017
- Improve the scientific quality of papers published in our field
 - Fully supported by JEMS and can be easily adapted to other systems
- IEEE CNOM / IFIP WG6.6 / collaborators
 - Carlos Raniery P. dos Santos, Lisandro Z. Granville, Jeroen Famaey, Carol Fung, Marinos Charalambides, Filip De Turck, Rémi Badonnel, Jeroen van der Hooft, Jürgen Schönwälder

5. Update of Network and Service Management Taxonomy



- 884 papers were analyzed
 - CNSM, IM, NOMS (2018-2020)
 - Main tracks only
 - Accepted/rejected papers
- 105 experts participated in a survey
 - TPC members from IM/NOMS/CNSM

5. Update of Network and Service Management Taxonomy

1. Network Management	2. Service Management	3. Business Management
IP Networks	Multimedia Services	Economic Aspects
Wireless and Cellular Networks	Content Delivery Services	Multi-Stakeholder Aspects
Optical Networks	Cloud Computing Services	Service Level Agreements
Virtual Networks	Internet Connectivity and Internet	Lifecycle Aspects
Home Networks	Access Services	Process and Workflow Aspects
Access Networks	Internet of Things Services	Legal Perspective
Fog and Edge Networks	Security Services	Regulatory Perspective
Wide Area Networks	Context-Aware Services	Privacy Aspects
Enterprise and Campus Networks	Information Technology Services	Organizational Aspects
Data Center Networks	Service Assurance	4. Functional Areas
Industrial Networks		Fault Management
Vehicular Networks		Configuration Management
Internet of Things and Sensor Networks		Accounting Management
Information-Centric Networks		Performance Management
		Security Management

5. Update of Network and Service Management Taxonomy

5. Management Paradigms	6. Technologies	7. Methods
Centralized Management	Communication Protocols	Mathematical Logic and Automated Reasoning
Hierarchical Management	Middleware	Mathematical Optimization
Distributed Management	Overlay Networks	Control Theory
Federated Management	Peer-to-Peer Networks	Probability Theory, Stochastic Processes, and Queuing Theory
Autonomic and Cognitive Management	Cloud Computing and Cloud Storage	Artificial Intelligence and Machine Learning
Policy- and Intent-Based Management	Data, Information, and Semantic Models	Evolutionary Algorithms
Model-Driven Management	Information Visualization	Economic Theory and Game Theory
Pro-active Management	Software-Defined Networking	Monitoring and Measurements
Energy-aware Management	Network Function Virtualization	Data Mining and (Big) Data Analysis
QoE-Centric Management	Orchestration	Computer Simulation Experiments
	Operations and Business Support Systems	Testbed Experimentation and Field Trials
	Control and Data Plane Programmability	Software Engineering Methodologies
	Distributed Ledger Technology	

5. Update of Network and Service Management Taxonomy

- Report with the results
 - Journal of Network and Service Management
- IEEE TNSM is adopting the new taxonomy
- Possible future actions:
 - Update the 5 Functional Areas
 - Consolidate the NSM area in a textbook containing the most influential papers for each taxonomy topic

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6. Special Interest Groups

6. Special Interest Groups

- Organise workshops, journal special issues, conference talks, vision papers
- Foster interaction with industry
- Activities span across TCs
- CNOM SIGs
 - Autonomous Networking Technologies
 - Routing and Addressing (together with TC on Communications Switching & Routing)
 - Security Management of Networks and Services
 - AI-based Network Management

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7. CNOM Awards

7. CNOM Awards

- **Dan Stokesberry Award**
- **Salah Aidarous Award**
- **Best Paper Award**
 - Award Subcommittee: Carol Fung (chair), Takeru Inoue, Maurice Khabbaz, Jinho Hwang, Ai-Chun Pang
- **Test of Time Paper Award**
 - Award Subcommittee: Yixin Diao (chair), Deep Medhi, Salil Kanhere, Lea Skorin-Kapov, Carlos Raniery P. dos Santos
- **Young Professional Award**
 - Award Subcommittee: **Noura Limam (chair)**, Prosper Chemouil, Zuqing Zhu, Xiaoming Fu, Taghrid Samak

<https://cnom.committees.comsoc.org/about-cnom/awards/>

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8. IEEE Distinguished Lecturer Program

8. IEEE ComSoc Distinguished Lecturer Program

- Nomination of DLs on behalf of the TC. Each TC is encouraged to nominate up to 4 DLs.
- Some important facts about the process:
 - DLs must be a Senior Member of IEEE or higher.
 - DLs must be a member of ComSoc.
 - DLs must be willing to create a conference tutorial if requested.
 - A nominee may be nominated by either a person or a TC, but a TC nomination is preferred.
 - Nominators must be IEEE ComSoc members and IEEE Senior Member or higher, TC chair preferred.
 - Nominations are due each year by September. The Distinguished Lecturers Selection Committee will begin processing nominations at that time.

<https://www.comsoc.org/membership/distinguished-lecturers>

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9. ComSoc Student Competition

9. ComSoc Student Competition

- **Communication Technology Changing the World** competition recognizes (teams of) students who demonstrate the capacity to improve the lives of people, through the application of communication technology and the development of projects that meet human needs
- Open to graduate and undergraduate students, who are members of the IEEE Communications Society.
- The First Prize consists of \$2000 , winner(s) invited to receive it at IEEE GLOBECOM
- The deadline for submissions is each year mid-August
- The IEEE ComSoc Student Competition has been a great success since its first edition in 2013
<https://www.comsoc.org/membership/ieee-comsoc-student-competition>

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10. Opportunities for Young Researchers

10. Opportunities for Young Researchers

- CNOM strives to create more opportunities for (young) researchers to thrive
 - Doctoral Symposium
 - Mentorship program
 - Competitions and challenges
 - SIGs
- Get involved
- Meet experts and broaden your network
- Build your CV

Contact CNOM / IFIP WG 6.6 officers

IFIP WG6.6 & IEEE CNOM Joint Meeting

*17th International Conference on Network and
Service Management (CNSM)
October 25-29, 2021*

