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Fast-Forward Poster Preview

- **Ellen Filipović**, TU Berlin, Germany
- **Mohammad Arifuzzaman**, Waseda University, Japan
- **Igor Vitas**, University of Zagreb, Croatia
- **Victor Koval**, Geyser-Telecom, Russia
- **Rahamatullah Khondoker**, Fraunhofer SIT, Germany
- **Eduardo Saiz Macías**, University of the Basque Country, Spain
- **Fan Bai**, Waseda University, Japan
- **Viliam Sarian, Nikolay Suschenko**, NIIR, Russia
- **Corlane Barclay**, University of Technology Jamaica

St Petersburg, Russia
3-5 June 20134

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Living in a converged world - impossible without standards?

HOW TO SUPPORT A STANDARD ON A MULTI-LEVEL PLAYING FIELD OF STANDARDIZATION: PROPOSITIONS, STRATEGIES AND CONTRIBUTIONS

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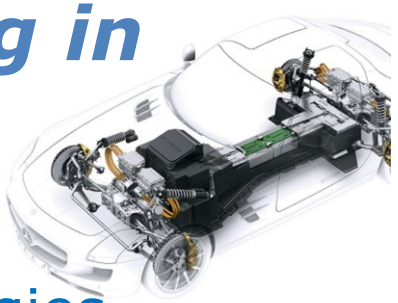
How can firms manage the proliferation of innovation by participating in standardization?



Background

Aim

Conclusion

Automotive industry

- Multiple converging technologies
- Extended socio-technical network
- Motive: targeted, active participation

>> Forum-shopping approach

Mapping of basic strategies

- □ Stakeholders
- □ Contributors
- □ Instruments
- □ Interrelations

>> Case study: EV charging interface

Multidimensional strategies dependent on external conditions and other supporter strategies

STILL PENDING: Success factors?!

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Content Distribution in Information Centric Network: Economic Incentives Analysis in Game Theoretic Approach

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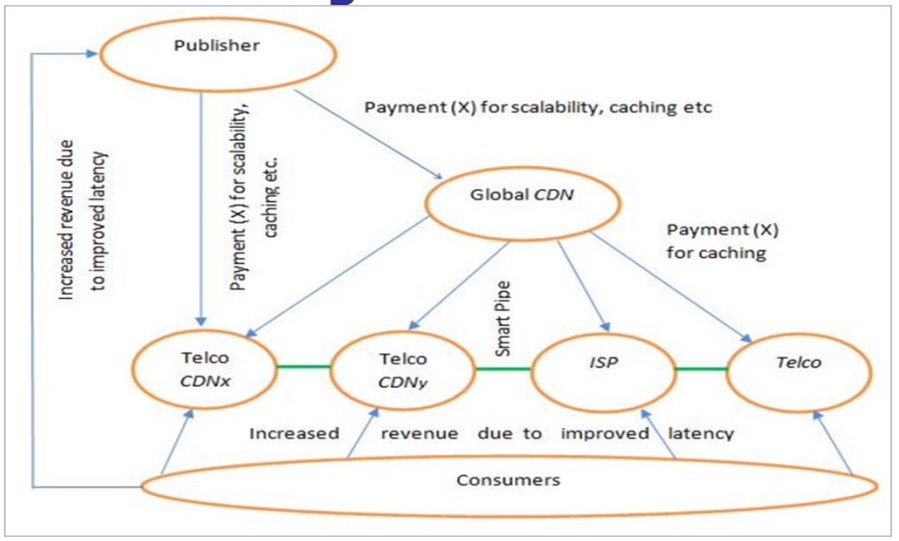
Content Distribution in ICN: An Economic Analysis

Background

- In ICN, a potential strategy by the publisher **ignores CDN** providers and direct connections with ISPs.
- It will take time to deploy **ICN** in **Internet scale**.
- **CDN** market estimated $**12.16 billion** by **2019**
- During **incremental** deployment of ICN, we believe, there is no scope of ignoring CDN.
- This article is an initiative to find some rooms where the **ICN and** the **CDN** can **work together**.

Contributions

- Proposed realistic **content distribution** model for ICN.
- **Game theoretic model** to show how CDN and ISP/Telco can have **fair share of increased publisher's revenues** in ICN**.**
- Economic Analysis for **Live Streaming Media broadcast**.



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Innovative RF Localization for Wireless Video Capsule Endoscopy

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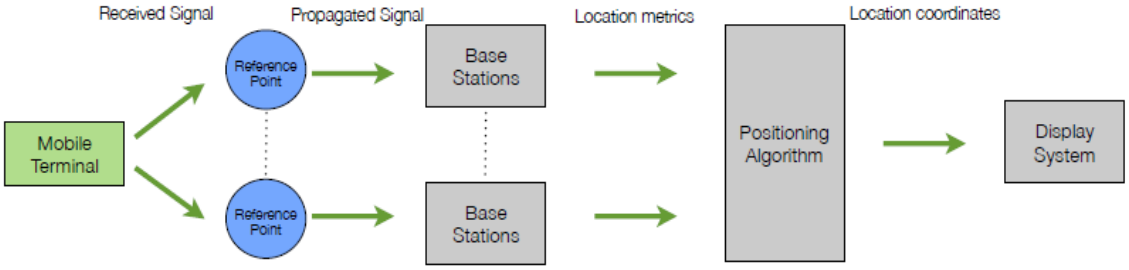
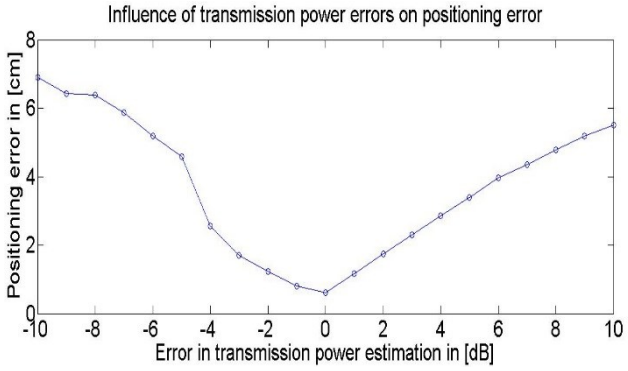
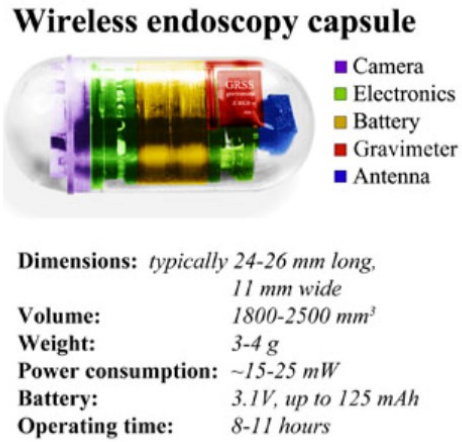
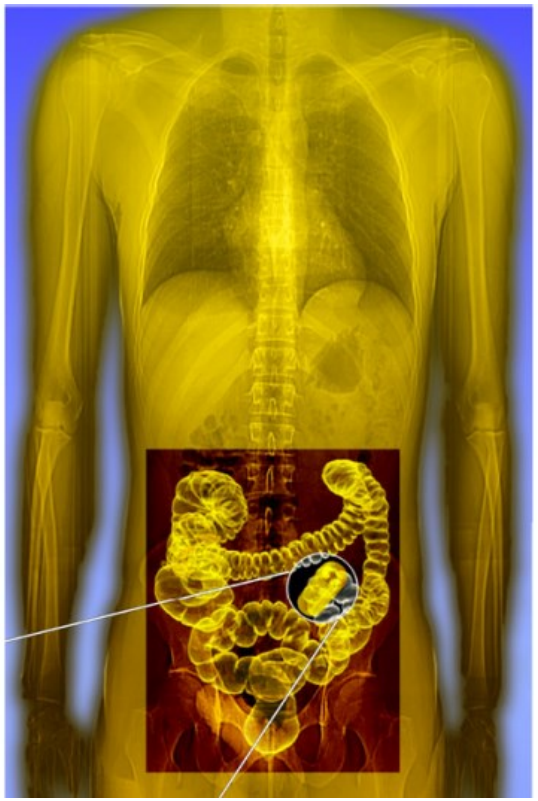
Localization, communication and standardization in field of Wireless Video Capsule Endoscopy - eHealth









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ECONOMICAL EFFICIENCY ASSESSMENT MODEL OF SPECTRUM CONVERSION FOR NEW MOBILE WIRELESS TECHNOLOGIES

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ECONOMIC EFFICIENCY OF CONVERSION

How to allocate budget effectively?

Frequency resource subject to conversion (f_i)

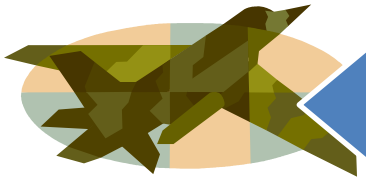
Profit per 1 MHz (c_i)

2G	31 MHz	GSM EDGE	720 mln $
3G	17 MHz	WCDMA HSPA	611 mln $
4G	20 MHz	LTE LTE-Advanced	487 mln $
xG	XX MHz	Beyond LTE-Advanced	YY $

$$E_{ef} = Efficiency/Expenses = \sum c_i * f_i / budget$$

OPTIMIZATION OF BUDGET

Conversion options



Replacement (profound modernization) of the technology

Organizational and Technical arrangements (frequency and area separation)

Indicators of optimization model

Efficiency

- Financial (specific financial requirements)
- Timetable (specific timetable with account of technical capabilities)
- Technical (min/max volume of the released frequency resource)

A Mutual Key Agreement Protocol to Mitigate Replaying Attack in eXpressive Internet Architecture

- **Rahamatullah Khondoker**
- Fraunhofer SIT, Darmstadt, Germany

CASED

Fraunhofer SIT

Introduction

Seven Future Internet Architectures have been chosen to be analyzed since each of the architectures

- solves problems of the current Internet such as flexibility, mobility, and security.
- has demonstration and/or prototype available

Security Goals	Security Attacks	SONATE	NENA	XIA	RINA	MobilityFirst	NDN	NEBULA
Confidentiality	Snooping	√	√	√	√	√	√	X
	Traffic Analysis	X	X	√	√	X	X	X
Integrity	Modification	√	√	√	√	√	√	√
	Repudiation	X	X	√	X	√	√	√
Availability	Denial of Service	√	√	√	X	√	X	√
Authentication	Man-In-The-Middle	√	√	√	√	√	√	√
	Reflection	√	√	√	√	√	√	√
	Masquerading	X	X	√	√	√	√	X
	Replaying	√	√	X	√	X	√	√

Legend:
√: Has (by design) mitigation mechanism(s)
X: Has no (by design) mitigation mechanism(s)

XIA is vulnerable to replaying attack. XIA is chosen as it is

- the most secure one than other existing network architectures.
- a content-centric network which is claimed to be the Future Internet by the FIA FCN group

Conclusion

The eXpressive Internet Architecture (XIA)

•is a Content-Centric Network (CCN) which has potential to be standardized in future.

•lacks mechanism to mitigate replaying attack.

Therefore, a solution to protect XIA from replaying attack has been proposed and implemented.

•Several existing solutions have been analyzed to derive the requirements for the proposed protocol.

•A new protocol is proposed because every existing solutions has its own disadvantages.

•The protocol has been implemented in XIA prototype and has been proven to be able to mitigate the replaying attack.

The proposed protocol has been evaluated to have more advantages over the reviewed existing solutions.

•It is more secure by having session key with length of 280 bits.

•Moreover, it is less complex as none of the random numbers used in the protocol are worthless.

By applying the proposed protocol, XIA is now able to mitigate all of the reviewed attacks.

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A Cloud Platform for QoE Evaluation: QoXCLOUD

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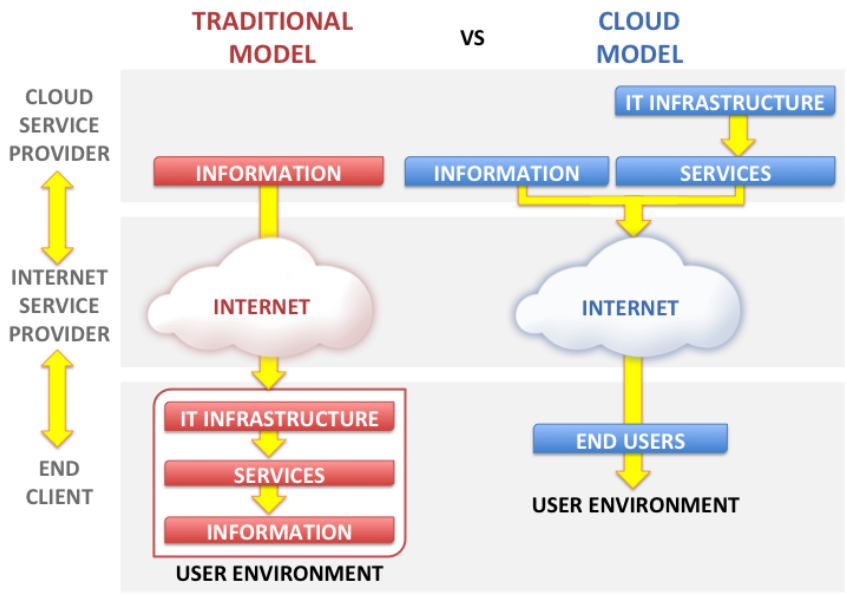
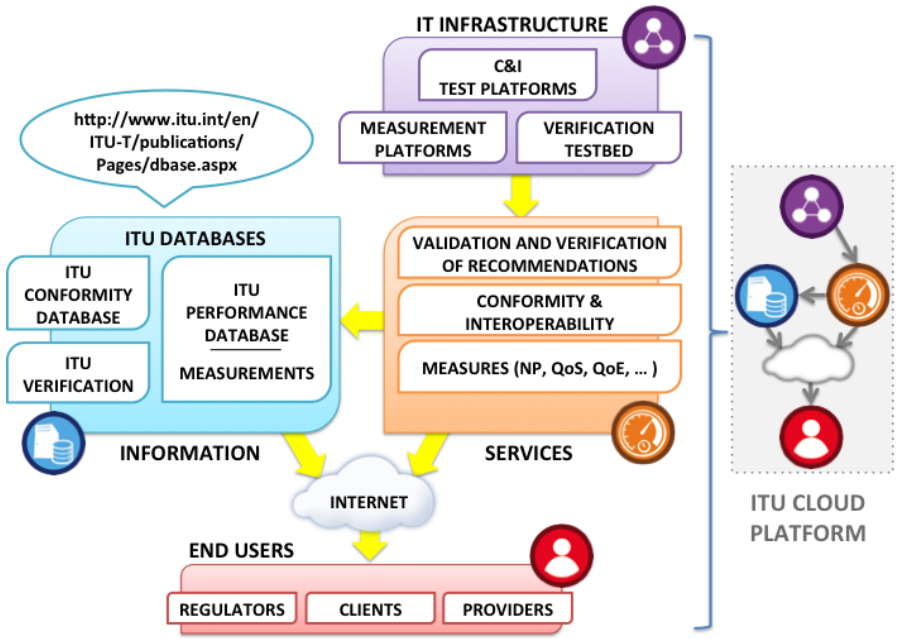
Background

New cloud based business model

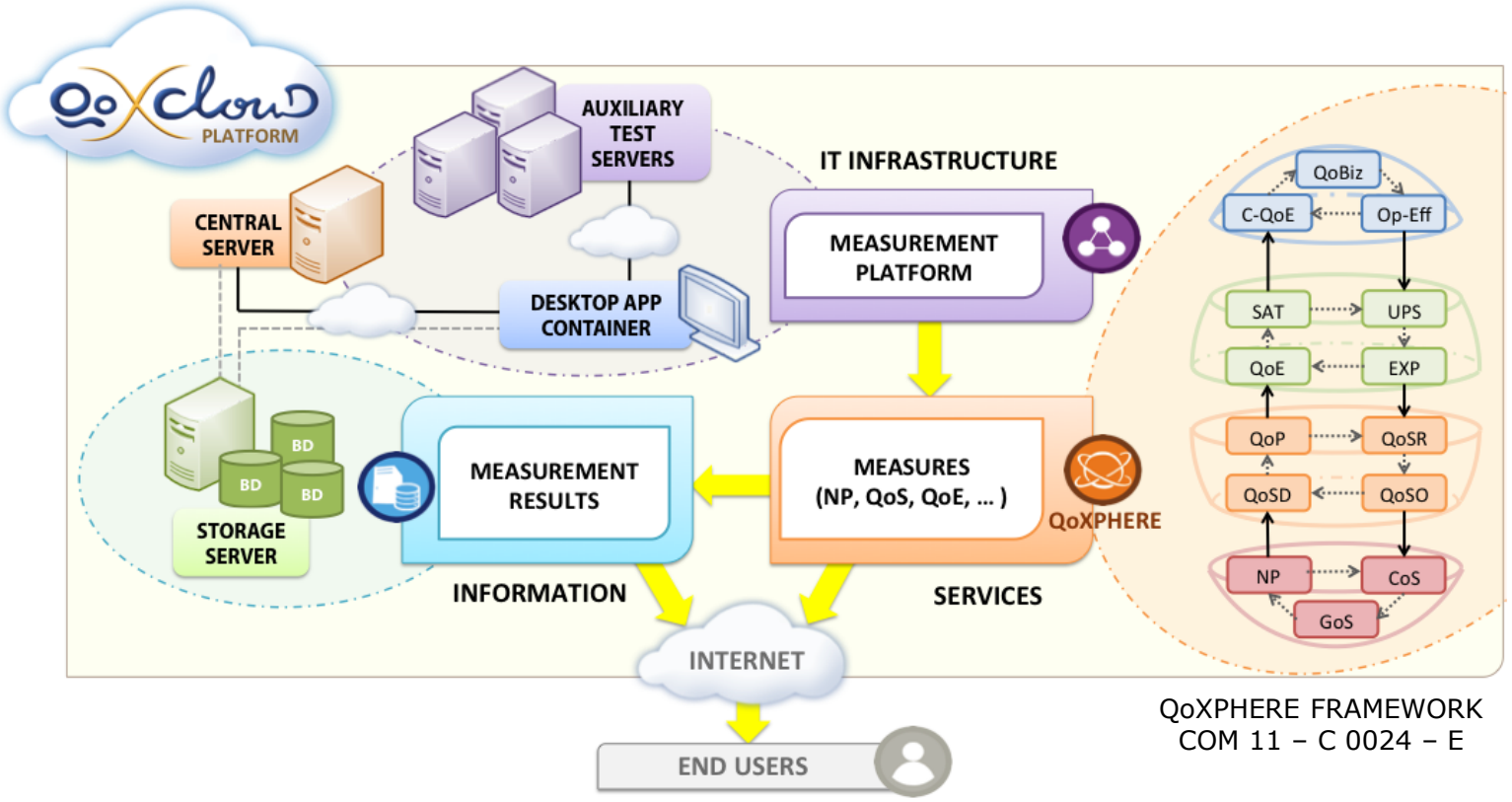


Proposal on ITU collaborative architecture



QoXCloud Platform

COM 11 – C 0099 – E



QoXPHERE FRAMEWORK
COM 11 – C 0024 – E

QoS BUSINESS

TMF GB935

ASSESSED QoS

CSAT model
ITU-T G.1030

PERCEIVED QoS

ITU-T G.1000

INTRINSIC QoS

ITU-T Y.1540
ITU-T Y.1541

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Performance Evaluation of a Dual Diversity Reception Base on OFDM RoFSO Systems Over Correlated Log-Normal Fading Channel

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- Motivation
- Channel fading due to atmospheric turbulence(scintillation).
- Effect of channel correlation on diversity system performance.
- Proposal and Method
- A dual diversity reception base on OFDM RoFSO systems.
- Correlated Log-normal fading channel(weak turbulence).
- Spatial Diversity & Aperture Averaging (AA)
- Combining schemes (MRC, EGC).
- Results and Analysis
- System performance is sensitive on channel correlation and turbulence strength.
- Diversity reception can be obtained in practice through AA effect.

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Assessment of New Information and Communication Technologies using activity-based costing and tensor analysis of networks

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Relation problem between the high-level criteria and technical criteria

High-level criteria
(literacy level, GDP, …)

Relation is poorly studied

Quality of services criteria
(average time of providing service, reliability,…)

Technical criteria
(data transmission speed, timing delay, …)

Bottom-up vs Top-down approach

- **Bottom-up approach:** «The introduction of the broadband access will lead to the growth of the Internet connection speed for most people; as a result, the population will use different IC services more, which will improve a quality of life for the population»
- **Top-down approach:** determine the relationships between the resources and conditions within which a new ICT is introduced and the social and economic effects of its introduction.

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Sustainable Security Advantage in a Changing Environment: The Cybersecurity Capability Maturity Model

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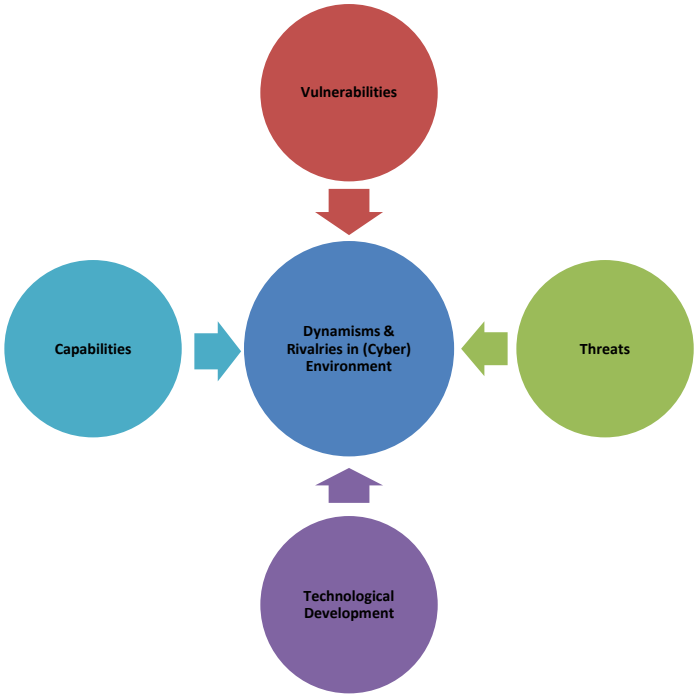
Background

- Cybersecurity considerations are imperative in any national development mandate
- Cybersecurity is not only about the technical issues, it involves management, legal, capacity building and other policy related considerations
- The objective of this research is to propose a conceptual framework for cybersecurity maturity model that is centred on capability
- To aid in guiding countries, particularly developing countries, in identifying key elements in their cybersecurity initiatives, and to inform an objective national cybersecurity index
- Two stage process of research
  - Identification of characteristics of security advantage
  - Development of a 6-stage cybersecurity management model

Towards Cybersecurity Maturity

5-Factor Model of the Cyber-environment



Stages of CM2

- Stage 1: Undefined
- Stage 2: Initial
- Stage 3: Basic
- Stage 4: Defined
- Stage 5: Dynamic
- Stage 6: Optimizing

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Meet the authors to find out more!

Poster session:
14:30 – 16:00

St Petersburg, Russia
3-5 June 20134