Workshop
Management & Control for Reliable Softwarized Networks

organized by COST Action IC1304 (ACROSS)
hosted by ITC 29, Genoa, Italy - 4 September 2016
http://www.cost-across.nl/
Workshop Programme

13.00 – 13.15  Hans van den Berg, TNO/CWI/UT, Netherlands; Kurt Tutschku, BTH, Sweden
                Welcome and Introduction

13.15 – 14.00  Glenn Ricart, US Ignite, USA
                Keynote 1: Network Services Abstractions for Edge Computing

14.00 – 14.30  Imen Grida Ben Yahia, Orange Labs, Paris, France
                Cognitive Network Management for Software Networks

14.30 – 15.00  Ensar Zeljkovic, University of Antwerp – imec, Belgium
                ORCHESTRA: Virtualized and Programmable Orchestration of Heterogeneous WLANs

15.00 – 15.30  Coffee break

15.30 – 16.15  Roberto Riggio, FBK CREATE-NET, Trento, Italy
                Keynote 2: Converging SDN and NFV at the network edges: the lightMANO approach

16.15 – 16.45  Florian Wamser, University of Würzburg, Germany
                Study on Cloud-Based VNF for QoE Monitoring

16.45 – 17.15  Niels van Adrichem, TNO, The Hague, Netherlands
                Robustness Challenges in Software-Defined Networks

17.15 – 17.45  Attila Kertesz, University of Szeged, Hungary
                Investigating the Management of IoT Cloud Systems by Means of Simulation

17.45 – 18.00  Rob van der Mei, CWI/VU University, Amsterdam, Netherlands (workshop co-chair)
                Wrap-up and Closing
Autonomous Control for a Reliable Internet of Services
IC1304
Start date: 14/11/2013
End date: 13/11/2017
MC Chair: Rob van der Mei (CWI / VU Amsterdam)
MC Vice-Chair: Hans van den Berg (TNO / UT)

http://www.cost-across.nl/
Scientific Context and Objectives

“Everything-as-a-Service”

• There is a lack of models and control methods to make the Internet of Services (IoS) reliable

• **ACROSS**: Develop quantitative models and methods to design and optimize quality-control mechanisms for the IoS
Scientific Context and Objectives

**Overall aim:**
Create European network of experts on the development of autonomous control methods for a reliable and quality-aware Internet of Services (IoS)

**Networking objective:**
Establish a platform to fuel and coordinate research on reliable IoS

**Technical objectives:**
1. Algorithms for autonomous decisions and QoS control
2. Scalable methods for monitoring to support QoS control
3. Rules for smart pricing schemes in many-domain environments

31 countries involved
2 MC members per country
Working Groups

**Working group 1:**
Methods for autonomous management and real-time control

**Working group 2:**
Methods and tools for monitoring and service prediction

**Working group 3:**
Smart pricing and competition in many-domain systems
Task Forces

- Softwarization of networks
- Cross-layer QoE-management
- QoS-aware service composition
- Cloud federations
- Energy/cost-aware management & control
- New transport protocols
- Quality/cost management
- QoS/QoE modelling & monitoring
- Reliable control of wireless networks (incl. 5G)
- Provisioning of context-dependent pricing, charging and billing
- QoS and price-aware selection of cloud service providers
Work Plan

Phase 1: Alignment
- M1.1: Website, dissemination and Industrial Forum
- M1.2: State-of-the-art and refined planning

Phase 2: Research and development
- M2.1: Initial models per WG

Phase 3: Integration and consolidation
- M2.2: Refined models validated + initial models integration
- M3.1: PoC simulations of integration
- M3.2: PoC test-lab experiments of integration
- M3.3: Book, final workshop and Community of Practice
Main ‘tools’ for realizing our objectives

- Regular MC meetings and WG1-3 Technical meetings
- Website
- Workshops
- Short Term Scientific Missions (STSMs)
- Summer schools
- Industrial Forum

Main products

- State-of-the-art document
- Papers
- New collaborations (personal, projects, …)
- Workshops etc. (see above)
- Final report
Events 2015

1st Open Workshop on Autonomous Control for the Internet of Services
Univ. Würzburg, Germany, 15 April 2015

Joint CLEEN and ACROSS workshop on Cloud Technology and Energy Efficiency in Mobile Communications
coi-located to EUCNC 2015, Paris, 29 June 2015

Special session on “QoS/QoE Monitoring and Management with SDN”

Workshop on "Engineering and Control for Reliable Cloud Services"
coi-located to ITC27, Ghent, Belgium September 2015
Events 2016

Summer School “Autonomous Control for Reliable Future Networks and Services”
Co-located to MIPRO 2016, Opatija, Croatia, 27-31 May 2016

COST ACROSS Industry day
Warsaw University of Technology, 13 May 2016

Summer School “Autonomous Control for Reliable Future Networks and Services”
Co-located to MIPRO 2016, Opatija, Croatia, 27-31 May 2016

Workshop on “Big Data for reliable 5G Networking”
Co-located to EUCNC 2016, Athens, 27 June 2016

Workshop on “Quality Engineering for a Reliable IoS”
co-located to ITC28, Wurzburg, Germany, 16 September 2016
Events 2017

Workshop on Autonomous Control for Performance and Reliability Trade-offs in Internet of Services (ACPROSS 2017)
Co-located to ICPE 2017, L’Aquila, Italy, 22 April 2017

Summer School on Latency Control for the Internet of Services
Karlstad University, Karlstad, Sweden, 26 June – 1 July 2017

Workshop on “Management & Control for Reliable Softwarized Networks”
Co-located to ITC 29, Geno, Italy, 4 September 2017

Final COST ACROSS Workshop
The Hague, Netherlands, November 2017 (tbd)
Autonomous Control for a Reliable Internet of Services
Methods, Models, Approaches, Techniques, Algorithms and Tools

To appear in December 2017
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Some Example ACROSS Topics

- Context Monitoring for Improved System Performance and QoE
- Application-Network Interaction for Adaptive Video Streaming
- Optimization of Distributed Fog-Computing / Near-Edge Computation
- Cloud Federation
- Control and Optimization of 5G Mobile Networks
Currently, we are witnessing a paradigm shift from the traditional information-oriented Internet into an Internet of Services (IoS). This transition opens up virtually unbounded possibilities for creating and deploying new services. Eventually, the ICT landscape will migrate into a global system where new services are essentially large-scale service chains, combining and integrating the functionality of other services offered by third parties, including cloud services. At the same time, as our modern society is becoming more and more dependent on ICT, these developments raise the need for effective means to ensure quality and reliability of the services running in such a complex environment. Motivated by this, the aim of this Action is to create a European network of experts, from both academia and industry, aiming at the development of autonomous control methods and algorithms for a reliable and quality-aware IoS.