

# Program



September 30 - October 2, 2015

<http://conferences.sigcomm.org/acm-icn/2015/>

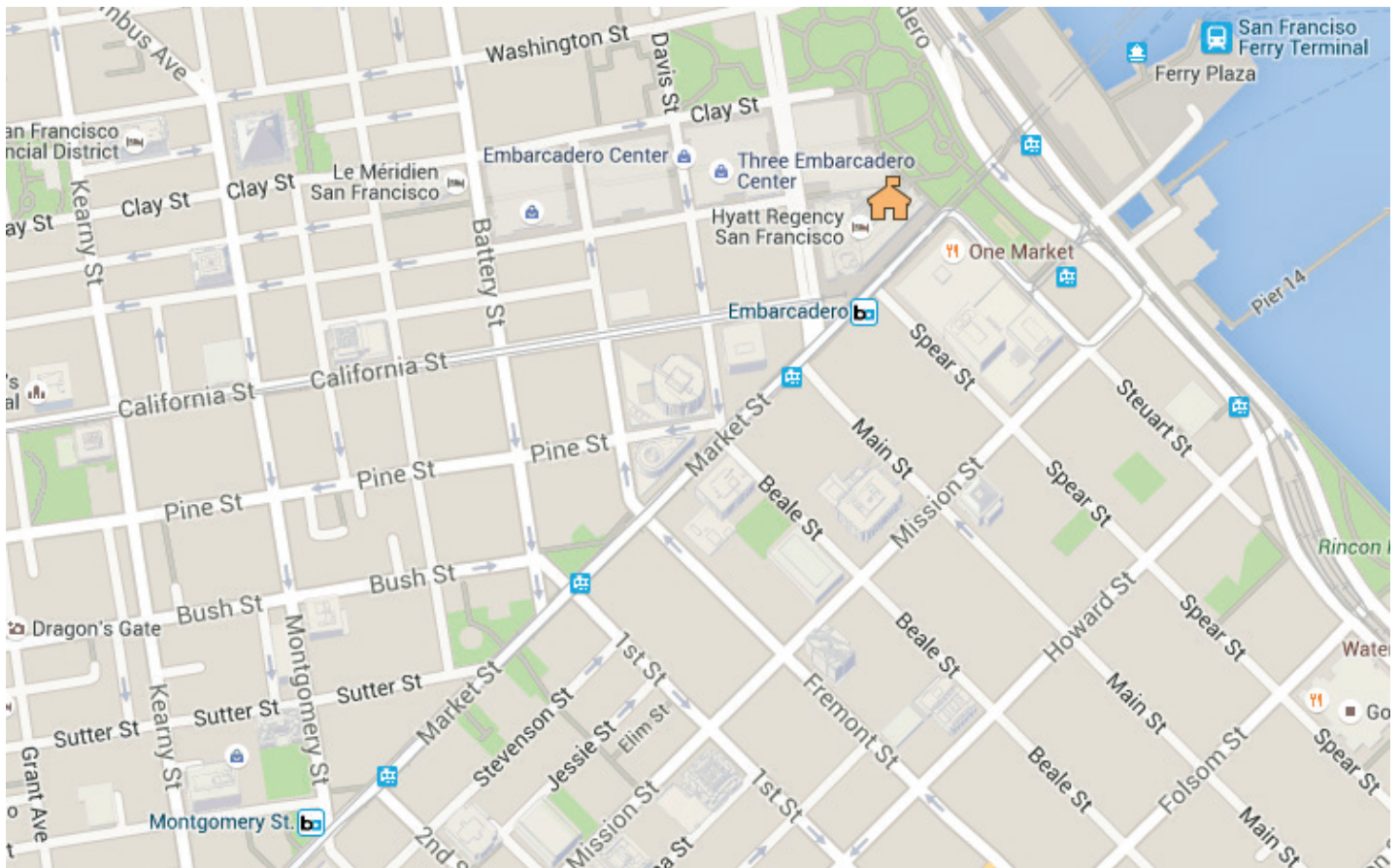
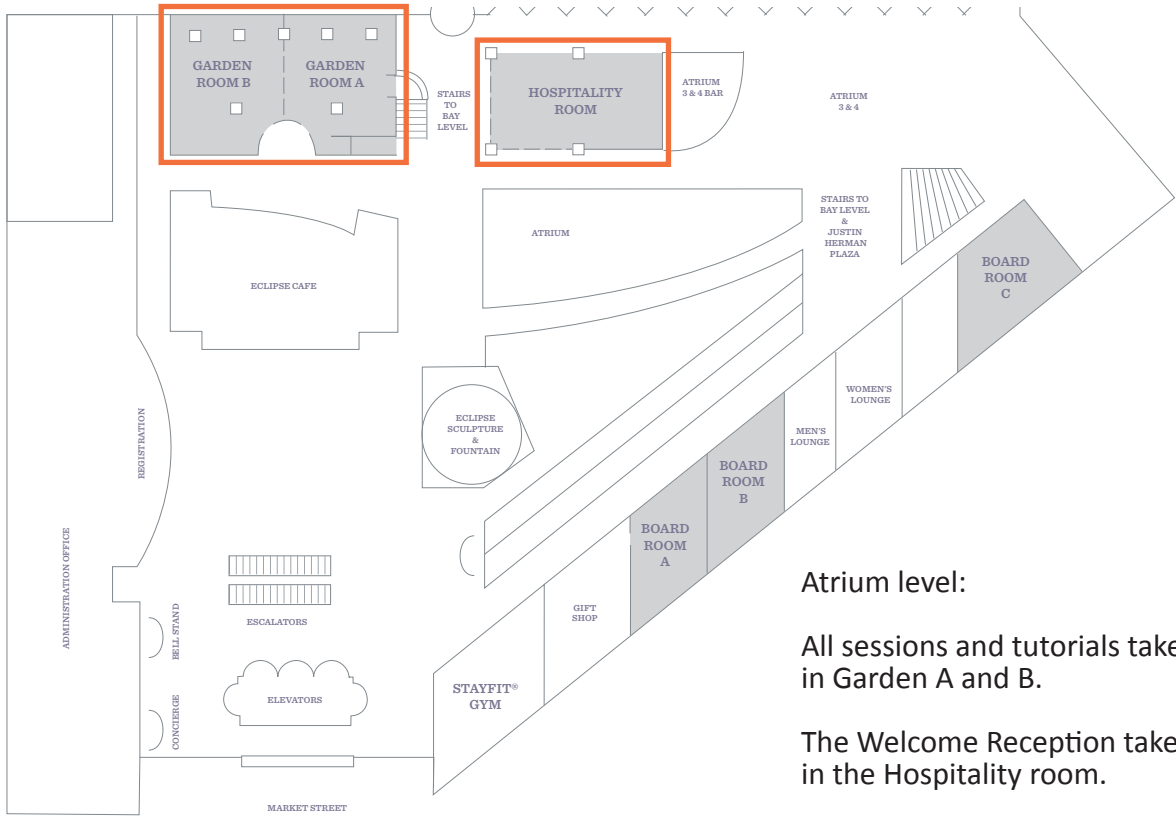


Association for  
Computing Machinery



# Logistics

Hyatt Regency, 5 Embarcadero Center, San Francisco, California, USA, 94111.



# Day 1 - Wed

## 9:00am - 5:00pm Tutorials

### **CCN: Practical CCNx - Protocol and Code**

Ignacio Solis (PARC), Marc Mosko (PARC), Glenn Scott (PARC), Alan Walendowski (PARC)

CCNx has changed a lot in the last year and this tutorial covers all the changes, updates and new code availability.

In ICN 2014 (September) a half day CCNx tutorial presented the base architecture of CCN 1.0. Due to time constraints there was no room for a hands-on practical experience. Over 100 people attended the tutorial.

In CCNxCon 2015 (May) over 30 people had a chance to do some coding with the latest CCNx binary release. We did a successful interop test at the end with 3 compatible implementations.

A source release of CCNx was announced late May and this is a great opportunity to learn more about developing with the code.

### **NDN: Security & Synchronization in Named Data Networking (NDN)**

Hila Ben Abraham (Washington University St. Louis), Alex Afanasyev (UCLA), Jeff Burke (UCLA), Steve DiBenedetto (Colorado State University), Jeff Thompson (UCLA), Yingdi Yu (UCLA), Lixia Zhang (UCLA)

Named Data Networking (NDN) is one of the most prominent ICN architectures and software platforms available to the research community. The NDN codebase is published under an open source license and widely used in experimentation; a 22+ node international testbed is available for research use. For several years, the NDN project team has presented tutorials to introduce the basics of the architecture and its software platform to researchers, both to promote related research and to encourage community contribution to the open source software platform. Previous tutorials have focused primarily on introductory material — in particular, Interest/Data exchange mechanisms and basic content verification. However, many of the field's most interesting research challenges lie in areas that build on these basics. In particular, mechanisms for access control and trust verification, along with next-generation transport protocols building on Interest/Data exchange, are important areas of work for the NDN project team.

This tutorial will share important architectural concepts we are exploring in these two areas, the software we have built to do so, and open challenges faced in each. In this way, we hope to engage tutorial participants in both using deeper features of the available toolset, and in considering these critical problem spaces with us. Specifically, we will conduct a hands-on tutorial that uses the creation of a modern browser-based application, built in Javascript, to cover three such topics where the ideas have progressed such that we can build experimental libraries to work with them: 1) encryption—based access control, 2) configurable trust verification, 3) multi—party synchronization.

## 7:00pm - 10:00pm Welcome Reception & Presentations of Demos and Posters

## 7:30pm - 8:30pm Poster and Demo Presentations

# Day 2 - Thu

9:00am - 10:30am Opening



Keynote: Improving the Internet with ICN  
Van Jacobson

Abstract:

Efficient static content distribution is the focus of most ICN efforts. But content distribution is just one of many Internet pain points. An Information Centric approach could potentially spur major advances on most of the Internet's most pressing problems. This talk will discuss where, why, and how ICN could make a difference on a broader scale.

10:30am - 11:00am Coffee Break & Presentation of Posters Reloaded

11:00am - 12:30pm Session 1: Routing

Session Chair: Jay Mishra

**Pro-Diluvian: Understanding Scoped-Flooding for Content Discovery in Information-Centric Networking**

Liang Wang, Suzan Bayhan, Jörg Ott, Jussi Kangasharju, Arjuna Sathiseelan, Jon Crowcroft

**Scalable Name-Based Packet Forwarding: From Millions to Billions**

Tian Song, Haowei Yuan, Patrick Crowley, Beichuan Zhang

**A New Approach to Name-Based Link-State Routing for Information-Centric Networks**

Ehsan Hemmati, J.J. Garcia-Luna Aceves (UC Santa Cruz)

12:30pm - 2:00pm Lunch Break

2:00pm - 3:30pm Session 2: Node Architecture

Session Chair: Kiran Nagaraja

**Bloom Filter based Inter-domain Name Resolution: A Feasibility Study**

Konstantinos V. Katsaros, Wei Koong Chai, George Pavlou

**Pending Interest Table Sizing in Named Data Networking**

Giovanna Carofiglio, Massimo Gallo, Luca Muscariello, Diego Perino

**Hierarchical Content Stores in High-speed ICN Routers: Emulation and Prototype Implementation**

Rodrigo Mansilha, Lorenzo Saino, Marinho Barcellos, Massimo Gallo, Emilio Leonardi, Diego Perino, Dario Rossi

3:30am - 4:00am Coffee Break & Presentation of Posters Reloaded

4:00pm - 5:30pm Session 3: Panel

Session Chair: Christian Tschudin

**ICN roadmaps for the next 2 years**

Paul Mankiewich (Cisco)  
Luca Muscariello (Orange)  
Ignacio Solis (PARC)  
GQ Wang (Huawei)  
Jeff Burke (UCLA)

# Day 3 – Fri

**9:00am - 10:30am Session 4: In-Network Caching**

**Session Chair: Luca Muscariello**

**On the Analysis of Caches with Pending Interest Tables**

Mostafa Dehghan, Bo Jiang, Ali Dabirmoghaddam, Don Towsley

**Performance and cost effectiveness of caching in the mobile access network**

Salah Eddine Elayoubi, James Roberts

**Object-oriented Packet Caching for ICN**

Yannis Thomas, George Xylomenos, Christos Tsilopoulos, George C. Polyzos

**10:30am - 11:00am Coffee Break**

**11:00am - 12:30pm Session 5: Content and Applications**

**Session Chair: Karen Sollins**

**Consumer / Producer communication with application level framing in Named Data Networking**

Ilya Moiseenko, Lijing Wang, Lixia Zhang

**Efficient content verification in Named Data Networking**

Dohyung Kim, SunWook Nam, Jun Bi, Ikjun Yeom

**NDN-RTC: Real-time videoconferencing over Named Data Networking**

Peter Gusev, Jeff Burke

**12:30pm - 2:00pm Lunch Break**

**2:00pm - 3:30pm Session 6: Internetworking and Access Control**

**Session Chair: Thomas C. Schmidt**

**MFTP: A Clean-Slate Transport Protocol for the Information Centric MobilityFirst Network**

Kai Su, Francesco Bronzino, K. K. Ramakrishnan, Dipankar Raychaudhuri

**Beyond Network Selection: Exploiting Access Network Heterogeneity with Named Data Networking**

Klaus M. Schneider, Udo R. Krieger

**Interest-Based Access Control for Content Centric Networks**

Cesar Ghali, Marc A. Schlosberg, Gene Tsudik, Christopher A. Wood

**3:30am - 4:00am Coffee Break**

**4:00pm - 5:30pm Session 7: Security**

**Session Chair: Christian Tschudin**

**Moderator-controlled Information Sharing by Identity-based Aggregate Signatures for ICN**

Tohru Asami, Byambajav Namsraijav, Yoshihiko Kawahara, Kohei Sugiyama, Atsushi Tagami, Tomohiko Yagyu, Kenichi Nakamura, Toru Hasegawa

**Catch Me If You Can: A Practical Framework to Evade Censorship in Information-Centric Networks**

Reza Tourani, Satyajayant Misra, Joerg Kliewer, Scott Ortegel, Travis Mick

**Schematizing and Automating Trust in Named Data Networking**

Yingdi Yu, Alexander Afanasyev, David Clark, kc claffy, Van Jacobson, Lixia Zhang

# Posters

## **Analyzing Cacheable Traffic for FTTH Users Using Hadoop**

Claudio Imbrenda, Wuyang Li, Luca Muscariello

## **Anchor-less Producer Mobility in ICN**

Jordan Augé, Giovanna Carofiglio, Giulio Grassi, Luca Muscariello, Giovanni Pau, Xuan Zeng

## **Partial Adaptive Name Information in ICN: PANINI Routing Limits FIB Table Sizes**

Thomas C. Schmidt, Sebastian Wölke, Nora Berg, Matthias Wählisch

## **VDR: A Virtual Domain-based Routing Scheme for CCN**

Jie Li, Jiachen Chen, Mayutan Arumathurai, Xingwei Wang, Xiaoming Fu

## **Revisiting Countermeasures Against NDN Interest Flooding**

Samir Al-Sheikh, Matthias Wählisch, Thomas C. Schmidt

## **Secure Name Configuration and Prefix Registration**

Marc Mosko, Glenn Scott, Ignacio Solis, Christopher A. Wood, Christopher Wood

## **A Network-Agnostic Data Framework and API for CCN**

Glen Scott, Christopher A. Wood

## **Multipath Support for Name-based Information Dissemination in Fragmented Networks**

Kohei Sugiyama, Atsushi Tagami, Tomohiko Yagyu, Toru Hasegawa, Mayutan Arumathurai, K. K. Ramakrishnan

# Demos

## **ICN based Scalable Audio-Video Conferencing on Virtualized Edge Service Router (VSER) Platform**

Asit Chakraborti, Syed Obaid Amin, Bin Zhao, Aytac Azgin, Ravishankar Ravindran, Guoqiang Wang

## **Demo:Content-based Push/Pull Message Dissemination for Disaster Message Board**

Tomohiko Yagyu, Kenichi Nakamura, Tohru Asami, Kohei Sugiyama, Atsushi Tagami, Toru Hasegawa, Mayutan Arumaithurai

## **An IP-based Manifest Architecture for ICN**

Cedric Westphal, Emrecans Demirors

## **Using CCN for Discovery of Missing Physical Items**

Cedric Westphal, Bertrand Mathieu, Obaid Amin

## **Experiments with the Emulated NDN Testbed in ONL**

Ze'ev Lailari, Hila Ben Abraham, Ben Aronberg, Jackie Hudepohl, Haowei Yuan, John DeHart, Jyoti Parwatar, Patrick Crowley

## **Enabling Smart Grid Applications with ICN**

Wei Koong Chai, Konstantinos V. Katsaros, Matthias Strobbe, Paolo Romano, Chang Ge, Chris Develder, George Pavlou, Ning Wang

## **CCNx Packet Processing on PARC Router Platform**

Dick Sillman, Eric Holmberg, Ramesh Ayyagari, Priti Goel, Mark Konezny

## **Demonstrating a Scalable Name Resolution System for Information-Centric Networking**

Jungha Hong, Woojik Chun, Heeyoung Jung

## **Prototype of an Architecture for Object Resolution Services in Information-Centric Environment**

Sripriya Srikant Adhatarao, Jiachen Chen, Mayutan Arumaithurai, Xiaoming Fu, K.K.Ramakrishnan

## **NetInf Live Video Streaming for Events with Large Crowds**

Adeel Mohammad Malik, Bengt Ahlgren, Börje Ohlman

Time	Wednesday (Sep. 30)	Thursday (Oct. 1)	Friday (Oct. 2)
09:00 – 10:30	Tutorials	Opening & Keynote (Van Jacobson)	S4: In-Network Caching
10:30 – 11:00			Break
11:00 – 12:30		S1: Routing	S5: Content and Applications
12:30 – 14:00	Lunch	Lunch	Lunch
14:00 – 15:30	Tutorials	S2: Node Architecture	S6: Internetworking and Access Control
15:30 – 16:00			
16:00 – 17:30			Panel
19:00	Welcome Reception		
19:30 – 20:30	Posters and Demos		
22:00	End Welcome Reception		