Welcome to the Fourth Annual MOC Workshop

Oct 30, 2018, Boston University
7:30 – 8:00  Check-in and Breakfast

8:00 – 8:50  Welcome and Overview
• Introductory Remarks – Gloria Waters, Boston University
• Overview of the Day – Orran Krieger, BU/MOC, and Peter Desnoyers, NEU/MOC
• Keynote: Scaling Challenges at Two Sigma – Mark Astley, Head of Reliability Engineering, Two Sigma Investments

8:50 – 10:25  Micro-talks: What’s Coming on the MOC
• MGHPC: A Platform for Collaboration – Jim Culbert, MGHPC
• The Next Iteration of the MOC – Lars Kellogg-Stedman, Red Hat
• Intel’s Data Management Platform @MOC – Dave Cohen, Intel
• Cisco: Multi-cloud services for the MOC and its users – Michael Shepherd, Cisco
• Harvard Dataverse and the MOC – Mercè Crosas, Harvard University
• Using the Mass Open Cloud to perform Data Science Experiments – Sherard Griffin, Red Hat
• Looking towards the computing horizon: A Northeast Cyberinfrastructure Lab – Wayne Gilmore, Boston University & Scott Yokel, Harvard University
• Q&A Panel – Moderated by Orran Krieger, BU/MOC

10:25 – 10:55  Break
Agenda

10:55 – 12:05  Micro-talks: Research in an Open Cloud
• Working on an Open Cloud: Red Hat Collaboratory Projects on the Mass Open Cloud – Hugh Brock, Red Hat
• The workflow motif: A powerful abstraction for debugging distributed applications– Mania Abdi, NEU/MOC & Golsana Ghaemi, BU/MOC
• Bump-in-the-Wire FPGAs and HPC in the Cloud – Ahmed Sanaullah, BU
• Q&A Panel – Moderated by Peter Desnoyers, NEU/MOC

12:05 – 1:05 Lunch & Networking – Special thanks to Two Sigma for sponsoring this year’s MOC Workshop lunch!

1:05 – 1:20 Lunch & Viewing of ChRIS Project Videos
• During the final 15 minutes of lunch, we will share videos on the ChRIS project.

1:20 – 2:35 Micro-talks: Elastic Hardware and Security
• Creating Isolation in the Cloud – Nabil Schear, MIT Lincoln Laboratory
• Malleable Metal: Integrating San-booting with Foreman – Naved Ansari, BU/MOC & Ian Ballou, BU/MOC
• Agentless Bare-Metal Introspection – Apoorve Mohan, NEU/MOC
• The Security in Elastic Secure Infrastructure– Amin Mosayyebzadeh, BU/MOC
• Strong Isolation, Verification, and Control in Future Public Clouds – Rushi Patel, BU
• FLOCX: Enabling marketplace at the bottom of the cloud – Sahil Tikale, BU/MOC
• Q&A Panel – Moderated by Orran Krieger, BU/MOC.
2:35 – 3:40  Micro-talks: Research on an Open Cloud
  • Medical Image Processing on the MOC with ChRIS and OpenShift – Dan McPherson, Red Hat & Rudolph Pienaar, Boston Children’s Hospital
  • Secure Multi-Party Computing in the Cloud – Ben Getchell, BU
  • A demonstration of adapting HW to SW needs for network workloads – Han Dong, BU
  • A Unikernal based on Linux – Ali Raza, BU & Parul Sohal, BU
  • FaaS: Think Outside the Container – Tommy Unger, BU
  • Q&A Panel – Moderated by Pater Desnoyers, NEU/MOC

3:40 – 4:10  Break

4:10 – 4:55  Roundtables (Attendees will pick one to attend)
  • Future Research Opportunities in the MOC – facilitated by Ayse Coskun, BU; Raja Sambasivan, BU & Mayank Varia, BU
  • Data Science and the MOC – facilitated by Merce Crosas, Harvard University & Sherard Griffin, Red Hat
  • Looking towards the computing horizon: A Northeast Cyberinfrastructure Lab – facilitated by John Goodhue, MGHPC & Scott Yokel, Harvard University

4:55 – 5:10  Break (Roundtable leads prepare report outs)

5:10 – 5:30  Roundtable Report Outs

5:30 – 5:40  Closing Remarks

5:40 – 6:45  Reception – Special thanks to Red Hat for sponsoring this year’s MOC Workshop reception!
1. Agenda, e-Boards and MOC Spotlights
2. NESE: The Northeast Storage Exchange – Saul Youssef, Boston University
3. The Next Iteration of the MOC – Lars Kellogg-Stedman, Red Hat
4. Intel’s Data Management Platform @MOC – Dave Cohen, Intel
5. Harvard Dataverse and the MOC – Mercè Crosas, Harvard University
6. The workflow motif: A powerful abstraction for debugging distributed applications – Mania Abdi, NEU/MOC & Golsana Ghaemi, BU/MOC
7. Bump-in-the-Wire FPGAs and HPC in the Cloud – Ahmed Sanaullah, BU
9. Malleable Metal: Integrating San-booting with Foreman – Naved Ansari, BU/MOC & Ian Ballou, BU/MOC
10. Agentless Bare-Metal Introspection – Apoorve Mohan, NEU/MOC
11. The Security in Elastic Secure Infrastructure – Amin Mosayyebzadeh, BU/MOC
12. Strong Isolation, Verification, and Control in Future Public Clouds – Rushi Patel, BU
13. Secure Multi-Party Computing in the Cloud – Ben Getchell, BU
14. FaaS: Think Outside the Container – Tommy Unger, BU
15. A demonstration of adapting HW to SW needs for network workloads – Han Dong, BU
16. A Unikernal based on Linux – Ali Raza, BU & Parul Sohal, BU
Thank You

The MOC Workshop is made possible by the generosity of our Core Partners

Special Thank You to:

Two Sigma for Sponsoring the 2018 MOC Workshop Lunch
Red Hat for Sponsoring the 2018 MOC Workshop Reception
• Studying computer engineering
• Main function at the MOC is working with the HIL team to further develop their project and maintain current servers
• Further interests in containerization, embedded systems, and Linux system administration.
PhD student associated with MOC. I am one of the core developers of HIL and also work on projects: BMI & SecureCloud.

I am broadly interested in cloud scale systems design with focus on bare-metal clouds. My focus is on developing novel methods to bring bare-metal performance to end-users in a way that is as flexible as traditional clouds without the overhead of virtualization.

One of the most unique and exciting things about working at MOC are the cross functional teams consisting of researchers, industry experts and students that work together to create the cloud solutions of tomorrow. I am proud to be part of it.
I’ve worked with the MOC for 2.5 years on many projects, especially on Mix&Match (resource federation and OCX enablement)

I also work for Red Hat

Ask me about upstream OpenStack or linguistics
MOC Spotlight: Apoorve Mohan
Northeastern University PhD Student
MOC Researcher

- 5th year PhD student at Northeastern University.
- Research Interest(s):
  - Systems and Networking (Cloud and HPC)
- Current Work:
  - Bare-Metal Resource Efficiency, Provisioning, and Introspection.
- Talk: Agentless Bare-Metal Introspection
- Website: apoorve.com
MOC Spotlight: Kristi Nikolla
MOC Software Engineer

• Software Engineer @ Mass Open Cloud
  – Mix&Match Team Lead & OpenStack developer (and expert1)
  – OpenStack Identity (keystone) core reviewer

• “The most exciting thing about working with the MOC has been the high level of involvement with the upstream OpenStack community, especially with the attendance at the various global events like summits and PTGs.”

• “Working on and (especially) leading an open source project is the most valuable skill set which I learned while working here.”

1. Missing citation
• BU ECE PhD student
• Working on the Secure Cloud Project
• Cloud Computing is a significant field of research in Computer Science. By working at the MOC, I have the chance to be a part of a vibrant team who has a major contribution to this field of research.
• PhD student @ Boston University and associated with MOC.
• Core Member of the BigData & Caching Project
• “Working at the MOC gives me an opportunity to get hands-on experience with real systems. It is great to collaborate with cool researchers and various industrial partners.”
MOC Spotlight: Ata Turk
MOC Research Scientist

- Research Scientist at MOC
  - Lead at MOC bigdata analytics & healthcare teams
  - Working on cloud operations analytics & cloud hosted secure big-data & dataset platforms
- “Working in the MOC I had a chance to see and change the guts of cloud systems and observe the effect of those changes on actual usage. Only by having such control and a real user base for evaluation can impactful research be made.”
MOC Spotlight: Lily Sturmann
Harvard University Extension School ALM Student
MOC Intern

- MOC Intern, working on dynamic instrumentation framework project with the tracing team
- ALM student in Software Engineering at the Harvard University Extension School
- Excited to be working on open source software in MOC’s creative and collaborative environment

Photo Credit: Vivek Gite https://www.cyberciti.biz/uncategorized/interns-are-working-hard-to-fix-computer-problems-on-national-cat-day/
MOC Spotlight: Charles Thao

Boston University Undergraduate ‘19
MOC Intern

- MOC Intern
- Undergraduate in Computer Engineering ‘19
- Charles is working for a project in geospatial analytics, a collaboration between Massachusetts Open Cloud and the Center of Geographic Analysis at Harvard University
- At MOC, I learned a lot about open source software and how to make contributions. Another lesson was how to manage to work between different teams
MOC Spotlight: Naved Ansari
MOC Software Engineer

- Graduated from Boston University with a Masters in Computer Engineering (May 2016).
- I work primarily on the HIL and BMI projects
- Most exciting thing about working at MOC is getting to work with a lot of smart people and that I can contribute to various projects right away.
- Github: github.com/naved001