

LISA 2017

San Francisco

October 29 - November 3, 2017

Contents

1	Introduction	3
2	Attendees	3
3	Journey	3
4	First day	4
5	Volunteer work	4
5.1	Registration Booth	5
5.2	Room Monitor	5
5.3	Tear Down	6
6	LISA17	6
6.1	Conference topics	6
6.2	Conference topics	7
6.2.1	Hands-On intro to Kubernetes	7
6.2.2	Service Management with systemd	7
6.2.3	Linux Performance Tuning	8
6.2.4	Introduction to R for System Administrators	8
6.3	LISA Lab	9
6.4	Expo	9
6.5	Birds-of-a-Feather	9
6.6	Reception	10
6.7	End talk	10
7	Conclusion	11

1 Introduction

The students attending the conference study Network and System Administration, which is a master programme in cooperation with Oslo and Akershus University College of Applied Sciences and the University of Oslo. The report includes what it's like to be a volunteer at the Large Installation System Administration (LISA) conference.

The conference was held at the Hyatt Regency San Francisco this year. The program addressed the differences between traditional and modern computer systems with a focus on architecture, culture and engineering.

2 Attendees

- Bikram Bam
- Habtetsega Bekele
- Torgeir Fladby
- Erik Aaron Hansen
- Thomas Stenberg Oddsun
- Erik Snartland
- Jonas Krüieger Svensson

3 Journey

The border security in the United States was increased prior to leaving. The travelling process was therefore complicated further. Though the atmosphere was tense at some points, the trip went for the most part effortlessly. Flying over the rocky mountains was beautiful and gave the lucky few with window seats a great view. The upped security meant that all passengers had to be interviewed. They asked what we were doing in the states and where we would be staying. No major hick ups though.

We arrived at the Hyatt Regency, where reservations had been made by USENIX. The rooms had double beds and all-in-all very good.



Figure 1: Happy to be in San Francisco.

4 First day

After a good night sleep we met up with the other volunteers and the conference managers of USENIX. We were assigned to pack promotional bags and fold t-shirts. The bags contained flyers from LISA sponsors and other goodies. We met Hillary Hartman and Sarah TerHune, whom we had exchanged emails over the last couple of weeks. They held a quick pep talk and introduced us to other crew members. The packaging of 850 promotional bags made us all experts in the art of packing bags. Not the most rewarding task, but it was a great opportunity to get to know our new colleagues. We finished by noon and were able to explore San Francisco. Hyatt Regency is situated in the financial district. The skyscrapers gives the impression that San Francisco is truly a metropolitan city.

5 Volunteer work

LISA is a big conference. They estimated around 850 attendees this year, which is why they need help with the organization of such an event. We were setup in a volunteer schedule each day and would assist wherever we were needed.



Figure 2: Registration booth.

5.1 Registration Booth

When attendees of the conference arrive they are greeted at the badge pickup. Our job was to register attendees and print their badge. Each attendant had to "check in" and their badge would automatically be printed out. There were different types of badges corresponding to their part in the conference. Attendees with the gold badge had access to all training sessions and talks. There were also ribbons given to some attendees indicating other features, like if they were giving a talk. With the badge, attendees also got their t-shirt, a USB-stick and the goodie bag we packed earlier. The USB-stick contained training materials used in the training sessions and conference program. As this was the attendees first impression of the conference it was important to be as welcoming and polite as possible.

5.2 Room Monitor

Training sessions were held during the first three days of the conference. The talks were held the remaining days. For each session we had to make sure all attendees were registered correctly. By scanning each badge we also made the room count. Attendees with gold or silver badges didn't have to register. There were some problems with the scanners, but this got sorted out after the first day. After the session had started we could join as well. Volunteers not working had the opportunity to attend whatever session they wanted. Thank you USENIX. By volunteering for this job you had the opportunity to talk to the person giving the tutorial or talk. This resulted in a lot of interesting conversations.



Figure 3: Training Room Monitor.

5.3 Tear Down

During the last day we helped disassembling the registration booth and other things set up for the conference. The attendees could recycle their badges and merch at the registration booth.

6 LISA17

6.1 Conference topics

One of USENIX's commitments is to encourage diversity in advanced computing. The opening talk focused on this particular topic. We are a big community and it is important to include all minorities. Therefore LISA17 offer Diversity Grants to support computer scientists interested in attending the conference. The grand is meant for members of groups underrepresented in tech.



Figure 4: LISA17 focuses on architecture, culture and engineering.



Figure 5: Eating lunch.

6.2 Conference topics

There were many interesting topics covered during LISA17. Here's a few of them.

6.2.1 Hands-On intro to Kubernetes

One of the first tutorial sessions was the "Hands-On intro to Kubernetes" by Ryan Jarvinen from Red Hat. This was a half-day session lasting from 09:00am to 12:30pm. The USB-stick all attendees got at badge-pickup had all the needed materials, including slides, code snippets and containers. This made the setup quick and easy, since everyone had the same material to work with. The tutorial taught us how to deploy, scale, update, and manage container-based solutions through exercises which Ryan walked us through. The presentation setup he had created was also very good, where the slides could be viewed at a website, and would be synced up with all of the attendees.

6.2.2 Service Management with systemd

Service Management with systemd was also presented by a Red Hat employee, but this time it was Michal Sekletar from the Czech Republic office. Michal had a hands-on tutorial, where tasks were given after he presented different ways of solving problems in plenary. The tutorial was aimed at Linux system administrators, package maintainers and developers who had or wanted to transition to systemd. We learned how systemd works in a more extensive way, how to actually use it effectively by finding the configuration files editing and maintaining them. Systemd consists of multiple components. The tutorial focused on the more commonly used, like journald.



Figure 6: Docker training session.

6.2.3 Linux Performance Tuning

Theodore Ts'o from Google had a full day tutorial on how to do Linux Performance tuning. Theodore was the first North American Linux Kernel Developer, and have been working with Linux since September 1991. Today, he is the maintainer and original author of the e2fsprogs userspace utilities for the ex2, ex3 and ext4 file systems, so some of the focus of the tutorial was of course on file systems. There was specific examples on how to tune and he suggested different use cases and strategies that could be applied to figure out what was needed. The tutorial was specifically aimed at advanced Linux system administrators, but attending this course as a student was still very interesting and useful. Some of the topics were how to characterize workload's requirements, finding bottlenecks, tools for measuring system performance and memory, network and filesystem/storage tuning. Strategies on when to use SSD versus HDD. How HDD's could be utilized better was my favorite topic. Since HDD's are round plates, the read speed can vary on the physical place a file has been written. By only using outer or inner parts of the disk, we can tune performance after our needs.

6.2.4 Introduction to R for System Administrators

Bob Ballance, an independent Computer Scientist, did the tutorial on how to use R for System Administrators. The course was, not unlike the others, filled with material that the attendees could dig into and do analysis of. The provided data sets did however had some tricky parts, for example that the clock changed

from summertime to wintertime, that the servers reporting back were in different time zones and so on. These issues were solved together in the class, and with different coding solutions. By attending this tutorial we learned how to use R, R packages, R studio and neat tips and tricks on how to solve problems we would encounter some day when parsing log files with R.

6.3 LISA Lab

The LISA Lab was open from Sunday through Friday and was an opportunity to learn new skills, brush up on current skills, and test your knowledge. There was an expert present at all times and you were challenged to do exercises on different topics.

One of the topics was security in system administration. This topic was covered mainly through three mini-tracks named Ansible, Defensive Kali and Offensive Kali. The two other topics were IPv6 and system administration tooling. While the tracks were short, they proved very useful as a way to get exposed to the themes of the tracks and to build upon for future exploration of the topics.

All three tracks in the security topic were accompanied by a set of slides, but instead of focusing on the theory, it focused on practical skills - learning by doing. To make the tracks accessible to everyone attending the lab, they had a local wireless network and several Raspberry Pi's used for hosting different groups of virtual machines. One group was used for Ansible (masters and slaves) and another group was used for the Kali courses (attackers and defenders/target). By asking one of the experts present, one would then get username and password for one specific machine, where one could do the tasks outlined in the slides. For the system administration tooling topic, they provided dockerfiles and virtual machines one could set up locally to follow the slides.

6.4 Expo

The Expo lasted two days where companies had stands presenting their latest technology and products. Employees and recruiters were present, making this a great opportunity to go job hunting and learn more about the different companies! All sponsors were present.

6.5 Birds-of-a-Feather

Birds-of-a-Feather events were held in the evenings after the conference. The events were informal gatherings of persons interested in a particular topic. There were also engineers present from the companies sponsoring the BoF. It was really interesting to get a look into how Facebook and Google do their system administration. Though it might not be as useful in our case as we're most likely not gonna work on systems that big.

6.6 Reception

The reception was held on Thursday. We ate food and conversed with the other conference attendees.

6.7 End talk

The final talk was held by Jon Kuroda. He discussed how we as system administrators can learn from the aviation industry when designing robust and fault tolerant systems. An error occurring during flight might have big consequences. Pilots go through extensive training in order to cope with unforeseen events. Aviation systems are thoroughly tested with each patch. Adopting these policies to system administration in general would benefit site reliability and robustness. Small updates might cause other parts of the system to act up. Though the repercussions might not be as severe as in aviation systems, we should always aim to keep as high up-time as possible.

7 Conclusion

The conference was a great opportunity to meet colleagues in the industry and network with new companies. The tutorials and talks were great. They covered tools we use on a daily basis which further improved us as system administrators. We want to thank the NUUG Foundation and the people who made this trip possible. Those being: Kyrre Begnum, Hårek Haugerud, Anis Yazidi, Boning Feng, Hillary Hartman and Sarah TerHune.



Figure 7: Group photo.