

## Conference Reports

### SESA '13: Summit for Educators in System Administration Washington, D.C. November 5, 2013

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It has been known for some time that one can take higher education in system administration, but for the first time representatives from programs around the world took a break during the LISA conference for their own little summit in “Lincoln 4,” a room large enough for 50, but on that November 5th it had to make do with 30+ and six posters. It was a good day. We made the most of it with new friendships, connections, and some conversations lasting into the late night hours. Read on for a summary of what was discussed and how this may affect the profession of system administration in the future.

#### **Factors that Drive Higher Education**

Even though only half of the people present actually represented higher education, the topics still circled that field. The keynote by Charles Border from Rochester Institute of Technology started the day with an introduction into what factors drive the world of educators. In broad terms, programs face the continuous challenge of enrolling as many students as possible and making sure they graduate. This, while maintaining a high standard and conducting research and publishing, is the key indicator of a successful program.

A program is manifested in a program description which defines certain learning outcomes for students who want to take part. These learning outcomes drive the topics and courses taught in the program. In turn, each course has its own sets of learning outcomes. The process of getting the program “approved” by the university, college, or government is called accreditation. Defining an entire program and getting it accredited is a lot of work and a slow-moving process. One therefore has to make very sure one gets it right the first time; otherwise you will have to do it over and will be committed to the program you already have (and the students currently in it) until accreditation is completed.

So when we define an undergraduate or graduate program, we need to focus on the elements of the profession that will stay the same for many years. We have to search for the core knowledge and skills that will be just as relevant today when the student starts as they will be in four years when the student graduates or even 15 years down the road. Our goal is to define learning outcomes that equip the candidate for a lifelong career in the field in order to pay off the huge investment required for an education in the first place.

Another factor is the actual execution of programs. How can we build realistic labs with almost no funding and find ways

to maintain them? In the field of system administration we require hands-on work, and students need to get experience with real-life systems. How can we create exams that realistically measure the skills we are looking for?

#### **Tension between Industry and Education**

We often hear the complaint, “We have problems hiring enough people who know X.” Our tongue-in-cheek answer would be “just pay them more!” The hard truths are more nuanced. We cannot change as fast as the industry does due to our accreditation process (which is a good thing). We have to know X too in order to teach it and have little time to so. We do listen, but our focus is on the broad concepts, and we use a particular technology as an example of the concept.

Program descriptions focus on broad, general skills and try to stay clear of picking sides by naming technologies. Remember, if we pick a technology as part of the learning outcomes, we have to stick with it until we have re-accredited it. The industry, however, has needs, and they are our “customers” in the sense that they hire our candidates. So of course we want to create attractive candidates, but does that mean they should be “billable from day one”? Our answer is “No, but listen.”

Once the conversation moves on we start to see what they look for in a good candidate, and here we are much more aligned. Managers look for sysadmins who can understand and break down complex problems and approach them in a structured way, communicate effectively, and transition between a technical and organizational perspective. The general term used for these skills is often “soft skills.” In a sense, isn’t that what higher education programs are good at?

We need to distinguish between the current practical needs of an organization and its long-term needs in terms of building careers internally. If a company needs to hire people with skills in language X right away, then that is a practical problem and a four-year undergraduate program cannot fix that. If they need someone who is not afraid of learning language X for you, then that is something we can prepare for.

#### **What Is a Sysadmin Anyway?**

It is really interesting that although programs in network and system administration have existed for a decade, we still have a hard time defining what a system administrator really is. And if we can’t, how can we expect students to be interested? What do they even know about system administration?

This issue was highlighted by Andrew Seely during his talk, when he conducted two experiments among MSc students at the Network and System Administration program at the University of Oslo. The first was to let the students write an essay on what defines the academic discipline of system administration. The

assumption beforehand was that the individual definitions would converge to a fundamental concept. This was not the case. Students mostly varied in their definition, but one thing was common: we are defined by what we do. In other words, it is primarily what you do, not what you know that makes you a sysadmin.

In the second experiment, Seely asked the students to each do a job market survey to try to identify what companies are looking for. The results showed that while particular technical skills were sought, so were soft skills, such as communication, documentation, and team and management skills. Seely's conclusion was that as long as system administration is defined by what we do, then we can use this exercise to not only enlighten the students of what they are preparing for, but also to calibrate our topics when we get the chance to do so.

What happens when government understands the importance of system administrators?

It has often been said that most people don't know or appreciate the work of system administrators, but Ski Kacoroski could tell us what happens when government backs education in system administration on multiple levels. Washington State has through its Center of Excellence for ICT built an educational pipeline in system administration starting from K-12 all the way to bachelor programs. Using surveys and industry feedback and coordination efforts, they created a complete overview of what kind of IT skills are needed in the industry and are able to provide the correct candidates for their sysadmin needs through 46 certificate programs, 54 associate degrees and eight bachelor programs. More can be found on <http://www.COEforICT.org>.

### ***A Nightcap for Everyone!***

The day ended with a BoF session at LISA. Here, the facilitators of the mini-workshops at SESA reported on their workshops. We were able to get in touch with more of the LISA audience and had some great discussions in the hallways even after our time was up.

Where are we going from here? Our goal was to bring educators together and build the foundation for a network. We achieved this and found great enthusiasm all around. As a result, SESA '14 will try and follow up at LISA in Seattle in 2014. We can't wait!