DevOps and the Future of SysAdmin Education
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• We already have a full curricula, and I am not sure what to pull out, but...

• These should come in
  – DevOps
  – Configuration as Code
  – Systems Architectures
  – Information Assurance
Changing architectures Necessitate Changing the Curricula
DevOps

• Brings Operations Management Techniques into computing
• Everyone should know a little about development and everyone should know a little about operations
• It is safer to make many small changes than a small number of big changes
DevOps In the Curriculum

• Release Engineering
  – E.g. Blue green deployments
• Orchestration
• Continuous Delivery
• Continuous Integration
• Projects that don’t start at zero
Configuration as Code

• Manually deployed architectures are prone to error and variability

• Distributed architectures vs monolithic architectures
  – Treating servers like cows, not pets

• If our configuration is going to be code, it should be treated like any other code.
  – Versioning/ testing/etc.
Configuration as Code in the Curriculum

• Puppet, Chef, Ansible, CFEngine
• Docker compose
• Ansible Galaxy
Systems Architectures

- How do you manage a big system? Break it into many small components connected via well known APIs.
  - 2pt

- Mutable vs. Immutable Architectures
Systems Architectures in the Curriculum

• SOA /Micro-service Architectures
• High Availability
• Load Balancing
• Service Discovery
• Networking/SDN
• Monitoring
• Storage
• Containers
• Container management: Swarm/kubernetes
Information Assurance

- When they go small (cybersecurity), we go big (information assurance)
- Security as architecture
- Risk management
- We don’t teach hacking
- Only real security is on the server side
Information Assurance in the Curriculum

- Enterprise Operations
- Security as Architecture
- Security Policies
- Security Procedures
- Auditing
- Compliance
- Risk Management