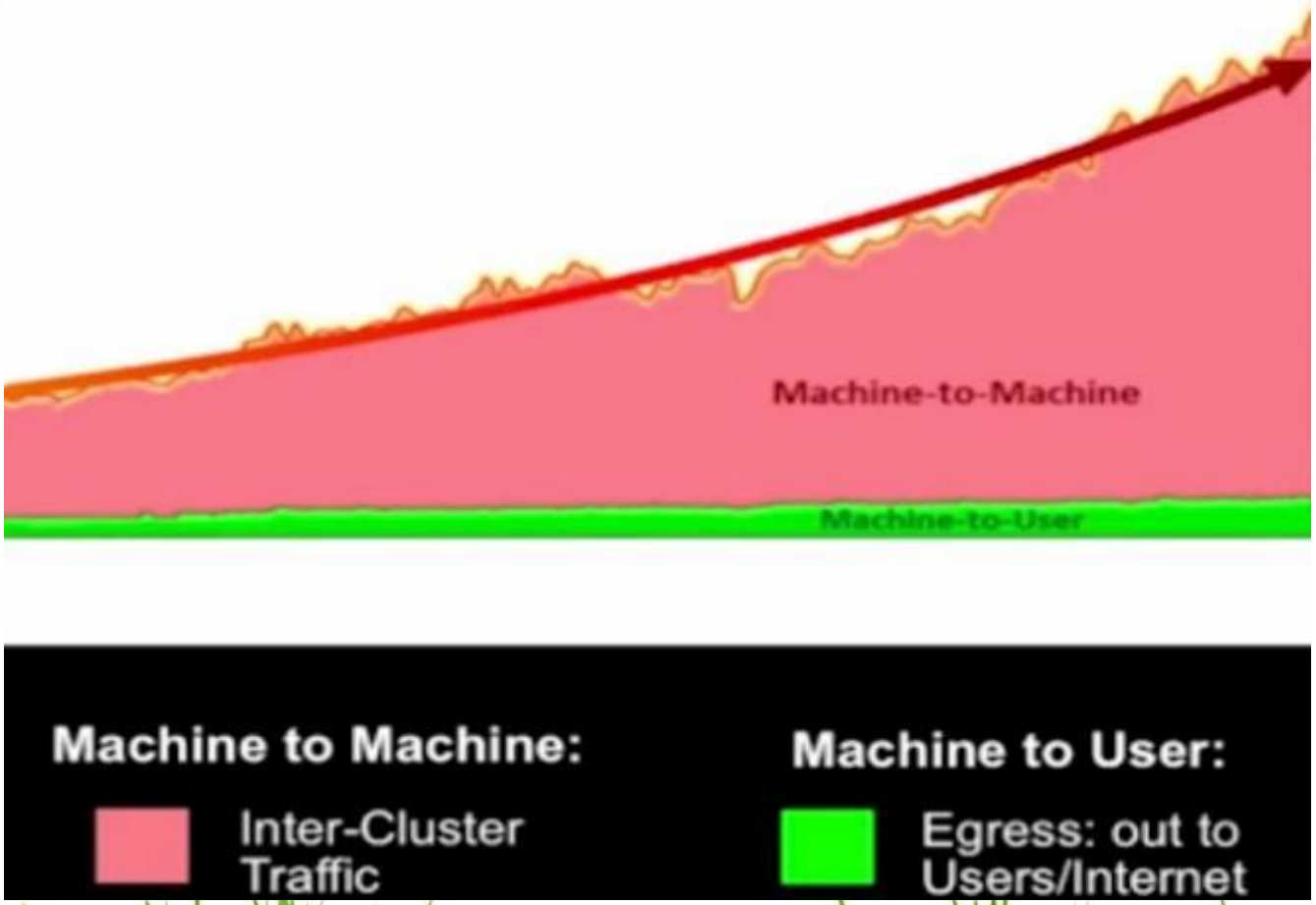
SESA '16
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DevOps and the Future of SysAdmin Education

DevOps and the Future of SysAdmin Education

- 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