A Practitioner's Experience of the Use of Cloud Computing in Control

Sekou L Remy
Assistant Professor
Human Centered Computing
Championing learning from examples

Dots represent instances of teaching

 Desired

Existing

Dots represent instances of teaching
Championing the use of web standards
Tools in use

- Google App Engine
- Google Hangouts
- ROS
- web.py
- Gazebo
- Stage
- OpenNebula
- openstack

Clemson University
Computing and Information Technology

University of Notre Dame
Closed loop control (stable)
Impact of the IaaS (no network)
Impact of the IaaS (w/ network)
Closed loop control (unstable system)
Closed loop control (unstable system)

The impact of network location is real, but there are developments coming!
“Off-line” use of cloud computation

Population based search for controllers

Best of Generation 75

OpenNebula
Using the package shared by researchers, but running on Openstack
Surprising pattern of failure in IaaS
The ecosystem of things that can affect performance
In summary...

Lots of choices!  
Lots of opportunity to fail/succeed  
We need help from other communities

Is software defined networking (SDN) really the panacea to latency?
Questions?