Contribution ID: **113** Type: **Plenary**

Scientific Computing with Amazon Web Services

Friday 26 February 2010 09:00 (40 minutes)

In an era where high throughput instruments and sensors are increasingly providing us faster access to new kinds of data, it is becoming very important to have timely access to resources which allow scientists to collaborate and share data while maintaining the ability to process vas > quantities of data or run large scale simulations when required. Built on Amazon's vast global computing infrastructure, Amazon Web Services (AWS) provides scientists with a number of highly scalable, highly available infrastructure services that can be used to perform a variety of tasks. The ability to scale storage and analytics resources on-demand has made AWS a platform for a number of scientific challenges including high energy physics, next generation sequencing, and galaxy mapping. A number of scientists are also making a number of algorithms and applications available as Amazon Machine Images, or as applications that can be deployed to Amazon Elastic MapReduce. In this talk, we will discuss the suite of Amazon Web Services relevant to the scientific community, go over some example use cases, and the advantages that cloud computing offers for the scientific community. We will also discuss how we can leverage new paradigms and trends in distributed computing infrastructure and utility models that allow us to manage and analyze big data at scale.

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Session Classification: Friday, 26 February - Plenary Session

Track Classification: Computing Technology for Physics Research