Design and Implementation of an Ambari Plugin for OneFS

Sponsor: Dell/Isilon

Mentors: Michael Kirby, Jake Low

Team Members: Tim Munson, Armin Rahimi, Anthony Aarott, Curtis Robert, Vu (Scott) Le

Motivation

- Isilon offers scale-out solutions for data storage with their OneFS operating system.
- Many of Isilon’s clients use Hadoop alongside OneFS in order to store and manage their data.
- The Apache Foundation has developed a web tool called Ambari that allows for easier monitoring of Hadoop clusters.
- Isilon wants to make sure their customers can monitor both their Hadoop and OneFS clusters at the same time.

Design & Implementation

- Make calls to OneFS using PAPI.
- Authenticate user and establish a session with the OneFS server.
- Use the Spring-MVC design pattern for the view.
- Use D3 to view metrics.
- Update the page using Ajax.
- Use session cookie for further requests.

Goals

- Create an Ambari plugin for OneFS that would enable Isilon’s customers to monitor their OneFS and Hadoop clusters through one unified interface.
- Include all the data provided by the “isi status” and the “isi hdfs settings view” commands in OneFS.
- The view must scale with OneFS.
- The view page needs to update in real time without the need to reload.
- Information should be presented graphically anywhere it makes sense.
- Users must be able to login the view using OneFS credentials.

Glossary

- Apache Ambari: Designed for easy deployment and monitoring of HDFS clusters.
- OneFS: Isilon’s operating system.
- Platform API (PAPI): API for OneFS that allows for reading metrics and manipulation of OneFS Clusters.
- D3: JavaScript library for manipulating documents.
- Hadoop: A scale-out file system designed to reliably store extremely large data sets.
- Ajax: Allows for automatic page updates.

Results

- Continuous updating list of events
- Information from the “isi status” call
- Graph of server CPU usage metrics

Future Work

- Expand the view to include more information about the cluster. Currently it provides basic information about the health of the cluster.
- Include the ability to make changes to the OneFS cluster through the view.
- Include an interactive shell on the web page, allowing administrators to run any commands they want from the view.

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Team Martell