OpenStack Capstone Post Mortem Report

Justin Anderson
Jack Nagel
Cesar Ramirez
John Rensberger

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1. Postmortem Results

1.1 Things That Went Well

- Through many hours of debugging and testing we've built a large amount of expertise in how OpenStack actually works.
- Been able to deploy OpenStack on a multinode environment.
- Discovery of Savanna and the testing we've done so far looks promising.

1.2 Things That Did Not Go Well

- Quantum has been a persistent issue. Even when using DevStack it was not working correctly.
- We had to revert back from using Grizzly after discovering it was unstable. This caused us to have to reinstall the entire environment again.

1.3 Lessons Learned While Doing the Project

- The development releases of OpenStack are fairly buggy, even when close to the final release date, so expect to have issues when doing pre-release installations.
- It is easy to underestimate the time required to complete a task, so always allocate more than you expect.
- When in doubt, *always* narrow the scope of the project rather than widen it.

1.4 What Could We Have Done Differently

- We should have attempted to deploy OpenStack earlier in the project, rather than spend time using DevStack or just researching the components. We learned much more by doing.

1.5 Recommendations for Future Projects

- Be motivated to learn new technologies. Don't let failures hold you back.
- Sometimes it's better to go ahead and implement something rather than trying to become an expert from reading documentation.
- If you're working on an emerging solution, expect to alway be catching up.

2. Project Size and Effort Estimates

2.1 Effort Estimates

Task	Estimate	Actual Size
Research	4 hours	11 hours
OpenStack on Physical Hardware	TBD	TBD
Documentation	5 hours	10 hours
Debugging	8 hours	~50 hours

Research was learning what Hadoop is and how it works. We included doing the turned-in documentation combined with any extra documentation requested by IBM. Research was looking into the highly technical aspects of the OpenStack services and the way they interact with each other. Implementation included working with DevStack and debugging the multinode testing environment. It also includes the effort spent setting Hadoop on top of OpenStack. Documentation is documenting our process and how we accomplish our goals as requested by IBM. Now our testing deployment allows us to get better performance and isolation from NDSU's networking.

2.2 Project Effort Breakdown

Project Area	Effort (%)
Documentation	30%
Debugging	50%
Implementation	20%

Documentation dealt with keeping track of our processes and how we accomplish our goals. All the documentation is done with System Administrators and future Capstone Projects in mind. Implementation is working on getting OpenStack working by following the installation process. Debugging was spent mostly on trying to get Quantum (and OpenStack) fully functional due to the high number of unexpected bugs encountered during the installation process. For example, we worked on doing a basic Hadoop installation and working with Heat scripts.