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Independent Study Proposal

Red Hat Enterprise Linux and Ceph in an IoT world

Distributed storage is becoming more relevant in today's cloud ecosystem where entire platforms and applications are hosted on data centers spread across the globe. As the IoT market expands we are seeing a large growth in the popularity of small form factor systems such as ARM.

Currently, we lack fully functional deployments of Red Hat Enterprise Linux and Fedora on ARM. Several components necessary for the installation of Ceph remain broken in current builds.

This study proposes to explore ARM architecture and Ceph distributed storage in relation to RHEL and Fedora. The ultimate goal is the successful deployment of Ceph on a RHEL/Fedora ARM node.

A potential pathway to this goal include the following steps:

- Gain an understanding of ARM architecture and the differences between x86, beyond generic RISC/CISC features
- Gain an understanding of the current system builds and limitations
- Gain an understanding of Ceph on ARM versus on x86
- Give RHEL and Fedora functionality required on ARM machines to render the OSs capable of hosting a Ceph node
- Full implementation of a Ceph cluster across a network of ARM nodes

Stretch goals include deploying Ceph using Ubuntu across a cluster of ARM boards. This leads to the possibility of comparing performance of a Ceph cluster on Ubuntu with a cluster running strictly RHEL and Fedora.