



Beowulf Foundation Proposal

September 13, 2021

Summary

The Beowulf community has helped propel the HPC sector to its current status as a \$40 billion market.¹ An industry and community-funded foundation can enhance and continue Beowulf cluster computing leadership by building communities around emerging open computing methods.

Beowulf Ethos

The Beowulf cluster grew from the need for cheaper, better, faster computing at NASA. The goal was to leverage open software and commodity hardware to create high performance computational clusters. The Beowulf project succeed beyond expectations, grew into a community, and created the underpinnings for continued excellence in high performance computing systems. While some high-end HPC systems now use expensive high-performance components, the bulk of modern day HPC clusters are still based on the original Beowulf concept of commodity hardware and open software.

Current Community Presence

The Beowulf community started in the early 1990s. It grew from the initial “Beowulf mailing list” at *beowulf.org* and continues to expand through other venues, such as the Beowulf Bash, a social event that kicks off the annual Supercomputing show (SC). The event is one of the largest at the show and is entirely funded by corporate sponsors who find value in supporting the Beowulf community. The event has been managed by Xand Marketing for a decade and attracts close to 1,000 attendees.

In 2018, the Beowulf Bash organizers decided to mark the 25th Anniversary of the founding of the Beowulf Project with a booth at SC showcasing the history of Beowulf and a short documentary on the genesis of the project and its impact on HPC today (currently located on the ClusterMonkey.net YouTube channel: <https://www.youtube.com/watch?v=P-epcSlAFvI>).

The current Beowulf community continues to provide technical direction to the HPC cluster computing market. Using commodity hardware and open software continues to spawn new cost-effective approaches and ideas for HPC, including ARM and RISC-V, 3D printing, deep learning, software containers, and more.

Beowulf Foundation

The Beowulf mission is to foster and support advanced technical computing (HPC, Data Analytics, Artificial Intelligence, etc.) through commodity and open source-driven innovation and open collaboration. Many major advances in HPC started as “common need” community-based efforts using commodity hardware and open software in a non-standard ways. This pioneering spirit is what the Beowulf computing foundation wishes to preserve and advance.

Specific foundation efforts may include developing vendor-focused projects, support for community-driven projects, software hack-a-thons, educational outreach, events, employment networks, and other high-quality technical resources.

¹ <https://www.hpcwire.com/2021/06/23/intersect360-report-hpc-market-rebounding-and-on-track-to-reach-60b-in-2025>



Structure and Funding

The Beowulf Computing Foundation will seek 501(c)3 non-profit classification and function similarly to the Linux Foundation. There will be an Executive Director, a Board of Directors, and a Technical Advisory Board. Funding is expected to come from both community and corporate members.

Advantages for Community

Although the Beowulf community continues to thrive, more can be done to strengthen and expand the relationships, conversations, and opportunities it offers. Community members share a particularly high level of technical knowledge that continues to advance the field and are often referred to as “the actual Rocket Scientists you hear about.” The ability to collectively synthesize open solutions continues to be the preferred approach for many HPC practitioners.

Advantages for Industry

As has been demonstrated in other sectors, a strong open community supports a strong marketplace. The bulk of support for the Beowulf Computing Foundation is expected to come from corporate members who seek to communicate, strengthen, and expand their positions in the market and community through an open vendor-neutral organization. The funding model will include corporate partnerships as well as opportunities to provide specific or project-based funding that benefits both vendors and community.

Next Steps and Contact

If there is enough community and industry interest in establishing a Beowulf Computing Foundation, a more comprehensive plan will be created based on both community and industry input. Please contact Douglas Eadline <deadline@clustermonkey.net> or Lara Kisieleska <lara@xandmarketing.com> with questions, comments, or interest in this effort.