More than 90 companies — from Airbnb to Yodle — rely on the Apache Mesos infrastructure software to manage their data centers. Mesos is working behind the scenes when we watch a Netflix movie, discover a new a restaurant on Yelp, ask Apple's Siri a question, or post on Twitter. Power players in science and industry, including CERN — home of the Large Hadron Collider — and Time Warner Cable, use Mesos, too.

Ben Hindman (B.S., '07) is co-creator of Mesos and co-founder of the company Mesosphere. For this work, the UW College of Engineering honored Hindman with its 2016 Diamond Award for Early Career Achievement.

Hindman grew up in the Rocky Mountain town of Carbondale, Colorado. His high school did not offer any classes in computer science, so Hindman talked his math teacher into letting him learn programming as an independent study. Having grown up in a community focused on outdoor adventure — Hindman is a serious telemark skier who also enjoys road biking and surfing — Hindman chose to enroll in UW after high school for its proximity to mountains as well as the strength of its CSE program.

"I couldn't have asked for a better place to become a computer engineer. UW CSE set the stage for me, grounded me in fundamentals that have been invaluable for solving problems, and gave me a sense of vision and inspiration for what we can really accomplish in our field," says Hindman.

As an undergraduate, Hindman worked on several research projects and was a teaching assistant for CSE professor Dan Grossman, an expert in programming languages and current holder of the J. Ray Bowen Professorship for Innovation in Engineering Education.

"My colleagues and I have always admired Ben as a gifted student, stunning engineer, and charismatic individual, but now we also get to watch in awe as his Mesos software system has become instrumental infrastructure for many of the most innovative and widely successful Internet services," says Grossman.

After earning his bachelor's in computer engineering with distinction from the UW, Hindman spent seven months as a software engineering intern at Google before pursuing a Ph.D. at the University of California, Berkeley. In a research paper published in 2011, he and his fellow Berkeley researchers presented Mesos:

A Platform for Fine-Grained Resource Sharing in the Data Center, a groundbreaking new system that would enable companies to run all of their applications on the same set of servers.

Hindman took a lead role in the development of the Mesos prototype and was instrumental in making the software quickly available to industry, where it was put to the test thanks to the crushing loads experienced by sites such as Twitter and Airbnb. By eliminating the need for companies to run different data services on separate, expensive, and energy-consuming hardware systems, Mesos offered a timely, effective solution to a vexing problem.

"In the early days, Twitter was known for what they called the 'fail whale,' and it looked like it was going to kill the company unless they could solve that problem," says Brad Silverberg, a former Microsoft executive and co-founder of venture capital firms Ignition and Fuel Capital. "Ben went to Twitter to help."

Rapid industry adoption of Mesos over the next three years, plus Hindman's entrepreneurial skills, enabled him to secure the venture capital to found Mesosphere, Inc., in 2013. The company provides features and services under the Apache Mesos banner to supplement the open-source Mesos software. With tens of millions of dollars raised to date, more than 150 employees, and offices in San Francisco, California and Hamburg, Germany, Mesosphere is a hot infrastructure computing company that has operated largely out of the public eye — but people would miss it.
first platform to secure a year-long contract with one major client, refine their product, hire a small staff, and launched a second beta round in early May.

They discovered their first product was too technical for their targeted user base, given the shortage of highly skilled coders and analysts. "We thought it was phenomenal when we turned a task that took 100 to 200 lines of code into a 5- to 10-line program," says Brudvik, DataBlade's CTO. "It turns out that even this little code is hard for the business intelligence people who primarily use Excel, so we took it down to zero coding in our new product."

"This opens up a new world of possibilities for people who don't code at all," Chen says. He notes that a fully cloud-based platform is one way to avoid relying on the expensive, rigid data warehouse and pipeline systems.

"We have owned up to the reality that data will continue to exist in many places and that we need to provide tools to help people access each source individually in a way that makes the most sense for each source, so the process is scalable and repeatable. We are not aiming for a lowest common denominator solution."

For strategic reasons, their initial customers are in the media field, a rapidly changing industry where they have a strong network. "The traditional ways media companies made money are no longer working, and many are looking to revamp their business models," Chen notes. "A new wave of companies will be digital only, and some will distribute primarily on social networks to build incredibly large platforms of followers." DataBlade, which works with both traditional and new media companies, wants to build a product for the next wave and then expand into other business arenas. "We need that crystal ball," he laughs.

Later this year Chen and Brudvik plan to seek angel or early-stage venture investment. The immediate goal, they say, is to "nail our software formula" and determine the platform features that most resonate with beta testers and potential customers so they can start building out the marketing and sales team and grow the company.

Their challenge — sharpen the blade, polish the crystal ball, and blaze trails through the jumbled clouds piling high and wide in the booming data universe.

For more information, visit datablade.io.

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**Hindman Diamond Award**

"We're looking to make Mesos become even more fundamental to the way software that runs in datacenters and clouds is programmed. We're doing that by building a distributed systems operating system that we call DC/OS," Hindman says.

"Twitter itself probably wouldn't be what it is today without Mesos," observes Florian Liebert, co-founder of Mesosphere. "Apple's Siri team publicly announced that Siri is powered by Mesos...I think it's important to look at both the impact Mesos has as a system...and the impact it has in terms of ideas that seeded an entire industry."

The company's name seems particularly fitting given its relatively anonymous but dynamic position in the tech universe. The mesosphere is the middle, little-studied layer of the Earth's atmosphere tucked above the stratosphere of high-altitude flight and below the thermosphere where satellites orbit. And yet, this region of strong winds, atmospheric tides, and gravity waves shakes up global circulation the way Mesos has shaken up the middle space between network servers and users' electronic devices.

"UW CSE set the stage for me, grounded me in fundamentals that have been invaluable for solving problems, and gave me a sense of vision and inspiration for what we can really accomplish in our field." - Ben Hindman

"Mesosphere has the opportunity to be one of the most impactful, powerful and valuable companies in the computing technology space," Silverberg says. "As the inventor of technology that could underlie the way most companies do computing, Ben could be one of the top luminaries in our industry — as both a technology and business person."

The College of Engineering celebrated Hindman's achievements at its annual Diamond Awards ceremony on May 20th.

View the College's video profile of Hindman at tinyurl.com/HindmanProfile.

Learn more about Mesos at dcos.io and more about Mesosphere at mesosphere.com.