



Roadrunner Project - Video News Release

NARRATOR:

Roadrunner was built for the Department of Energy's National Nuclear Security Administration, and will be housed at Los Alamos National Laboratory in New Mexico.

Roadrunner's primary duty will be to help ensure that the US nuclear weapons stockpile is safe and reliable without nuclear testing by running complex nuclear weapons calculations that give scientists critical data.

Bijan Davari, VP Next Gen. Computing Systems, IBM Fellow:

What we're announcing is a major milestone in high performance computing, which is reaching a petaflop computational capability.

Dr. Donald Grice, Chief Engineer, IBM:

Roadrunner is a collaboration between IBM and the Los Alamos National Laboratory, and it will produce the largest supercomputer ever, at 1.5 petaflops, three times faster than the current largest system. It's a hybrid architecture that will allow science at scale that has never been allowed before.

David Turek, VP Deep Computing, IBM:

The Roadrunner project at Los Alamos is really the first significant manifestation of what we call hybrid computing. At its center are very conventional kinds of microprocessors from AMD—the kinds of microprocessors that you'll find in laptops and servers.

But surrounding this are a large number of chips known as a cell broadband engine—the same kind of chip that you find in the Sony PlayStation 3.

DAVARI:

An important aspect of using cell chip to build the Roadrunner was the fact that within each cell chip there are eight cores which are vector engines that can produce significant computational capability for the kind of program that we are using for Roadrunner.

GRICE:

A rack holds the equivalent of 1,000 of your PCs.

John Morrison, Los Alamos National Lab:

Probably for the first time, Roadrunner will be large enough to run some multi scale science simulations. So, these have been talked about for a number of years in the high performance computing industry, but with Roadrunner we will have a machine that will be able to do this, these multi scale simulations.



GRICE:

Roadrunner lets us scale in a power and space efficient way to scales that people haven't gone to. And so what's needed now is visualization at scales that can match those.

Visualization is the ability to actually show in still pictures, three dimensional images, motion pictures, the results of experiments that have been run on the supercomputer.

Businesses are picking up on what high performance computing can do for them. So you see that going into pharmaceuticals; we are now simulating what drugs can do in the body. You also find it in medical imaging.

And we're finding that the banks and the people on Wall Street are actually now very excited about high performance computing, because they can simulate what might happen with the markets.

DAVARI:

The unique advantage of IBM here is we can bring in hundreds of technical experts around the world in all aspects of software design on the system, packaging, cooling and the overall system design in a way that can solve the interrelated problems and work together with the system people which build the chips, where they build the blades, and connect them all together to come to these kinds of breakthrough performance numbers.