Personalized medicine, advanced genome coding advance to vastly improve medical care

We each have a biological map — the human genome — that can tell doctors a lot about us. By understanding our genome, medical professionals can create a specific drug regimen to treat cancer, figure out why a treatment isn't working or even tell what diseases might strike us in the future.

"A lot of people think of the genome as the human blueprint or the instruction manual — your personal instruction manual," says Matt Huentelman, associate professor in Neurogenomics at the Translational Genomics Research Institute (TGEN), a not-for-profit organization that studies and sequences human genomes. "We try and examine the entire instruction manual and figure out what went wrong."

With 3 billion DNA pairs in humans, genome mapping is easier said than done. It takes enormous computing power to process— about 90 billion data points have to be sorted and analyzed — which can be incredibly time consuming and expensive. When the human genome was first mapped, it took 10 years and cost $1 billion.

In 2012 Dell upgraded TGEN's HPC clusters to a private cloud multi-tenant platform, which was able to process data virtually at far faster speeds. Prior to that, it took two weeks to process a genome, but now it can be done in about seven hours, says James Lowey, TGEN's vice president of technology.

TGEN has been able to help children diagnosed with Neuroblastoma, in large part because of how quickly it's able to sequence someone's genome.

The GLP aggregated and excerpted this blog/article to reflect the diversity of news, opinion and analysis. Read full, original post: Decoding Your 'Instruction Manual': Inside The Amazing Advances In Personalized Medicine