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# Health Informatics & Technology Conference

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## Issues and upcoming challenges about integrating genomics with healthcare

**Sanjaya Joshi**
EMC Isilon Storage Division, USA

With more than 350 million human peptide sequences not being allocated to structures or annotated, the task for Clinical Proteomics remains daunting. Clinical Genomics is currently facing a similar scale issue-more than 20,000 protein coding genes and more than 30,000 RNA coding genes – along with the integration challenges with Imaging and Healthcare Informatics along with the ever-growing biological understanding. As the front-end technologies of Genome Sequencing, Flow Cytometry and Proteomics move closer to "production ready" systems within the Electronic Medical Record and patient care, there are the realities of method design, validation and verification, algorithm management, LIMS along with the various infrastructure components from compute to storage. Integration remains the largest challenge. A 2013 summary of the issues involved with integrating Genomics with Healthcare systems will be presented and the upcoming challenges in scaling the compute and storage discussed from an informatics and a data repository perspective. Macro- and Micro-Economic models would be presented along with data sizing for the various modalities within Genomics and Proteomics. A storage and compute approach will be presented to architect the scale toward nation-scale healthcare systems.

### Biography

Sanjaya Joshi is the CTO, Life Sciences at the EMC Isilon Storage Division and based in Seattle, USA. His 25 year career has spanned the entire gamut of life-sciences from clinical and biotechnology research to healthcare informatics to medical devices. His current focus is Big Data in Genomics and Proteomics. He was the recipient of an NIH Small Business Innovation Research (SBIR) grant for "proteomics processing using networked instrument routers". He has also been a consultant and co-PI on several NIH grants. He is actively involved in non-profit biotech networking and educational organizations in the Seattle area and beyond. His recent experience has included Cloud architectures for Healthcare EMR data and Life Sciences; multi-dimensional data analysis in Proteomics and Flow Cytometry; FDA and HIPAA computer systems validations; LIMS design and compliance for the genomics and biotechnology industry; translational research in embryology and Radiology imaging technologies. He received his Bachelors in Instrumentation Technology from Bangalore University with honors and Master of Biomedical Engineering from the University of New South Wales, Sydney. He also completed PhD courses in Molecular Biotechnology at the University of Washington, Seattle.

Sanjay.joshi@emc.com

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Page 31