True elegance of scalable and adaptable architecture is not about incorporating the latest and greatest technologies. Its elegance is measured by its ability to scale and adapt as its operating environment evolves over time. Architecture is the link that bridges people, process, policies, interfaces, and technologies. Architectural development begins by observe the relationships which really matter to the problem domain. It follows by the creation of a single, shared, evolving, pattern language, which everyone contributes to, and everyone can use [C. Alexander, 1979]. Architects are the true artists. Like all masterpieces, the values and strength of architectures are measured not by the volumes of publications, it is measured by its ability to evolve. An architect must look back in order to move forward. This talk discusses some of the prior works including onboard data analysis system, knowledgebase system, cloud-based Big Data platform, as enablers to help shape the new generation of Earth Science projects at NASA and EarthCube where a community-driven architecture is the key to enable data-intensive science.

[C. Alexander, *The Timeless Way of Building*, Oxford University, 1979.]

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