

Data Generation Phase (scenarios)	Comments (Overview)	Transactional/in-situ processing requirements	Storage for Post processing	Sharing and distribution	Visualization
Exascale Simulations (1) Design Oriented (e.g., combustion, CFD)	Generation of data from simulations.	Data reduction for post processing (2) feature detection & tracking (3) advanced analytics	Reduced data	Low (Only the producer or a few scientists may analyze data in the future)	In-situ, interaction, feature display, uncertainty, visual debugging
Exascale Simulations (2) (Science Discovery Oriented (e.g., Climate, Cosmology))	Data Generation from simulations.  Data Generation from instruments  Integration	(1) Data reduction for post processing (2) time series (3) statistics (4) advanced analytics	(1) Raw data (2) Well organized (DB) (3) Enabled for queries	High ( A large number of scientists, geographically distributed)	InfoVis and SciVis, pattern detection, correlation, clustering, ensemble vis, uncertainty
Large instruments1 (e.g., LHC)	Data generation from large devices  Extremely high rates  Centralized, coordinated/ controlled access	(1) HW/SW for high-rate data processing (2) derived data (3) metadata (4) Extensive queries	(1) Raw data (2) Different forms of derived data (3) Lots of distributed copies	High (A large number of scientists, geographically distributed), different sets defined by queries and other parameters	Custom user interfaces enabling query visual analysis, trajectory vis/ analysis, user driven data triage/ summarization
Instruments2 (sensors, devices) Examples: field work, biology, observation sensors, internet	Data generation from massive number of distributed devices, sensors, crowd	(1) Local processing and derivations (2) Local analytics (3) Integration of massive data (possibly at an exascale level system, data centers)	(1) Raw data (2) Derived data and subsets (3) Distributed copies	High (A large number of scientists, geographically distributed),	InfoVis, high dimensional vis, large-scale graphs, patterns, clustering, scalability