

Science 2.0: From Benchtop to Laptop

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*Any opinions or recommendations expressed in this material are those of the presenter
and do not necessarily reflect the views of the National Science Foundation (NSF)*





QuickTime™ and a
decompressor.

The calculation for science


$$\left(\begin{array}{c} \text{Moore's} \\ \text{Law} \end{array} + \begin{array}{c} \text{Scientific} \\ \text{Complexity} \end{array} \right) \times \begin{array}{c} \text{Digital} \\ \text{Culture} \end{array} =$$

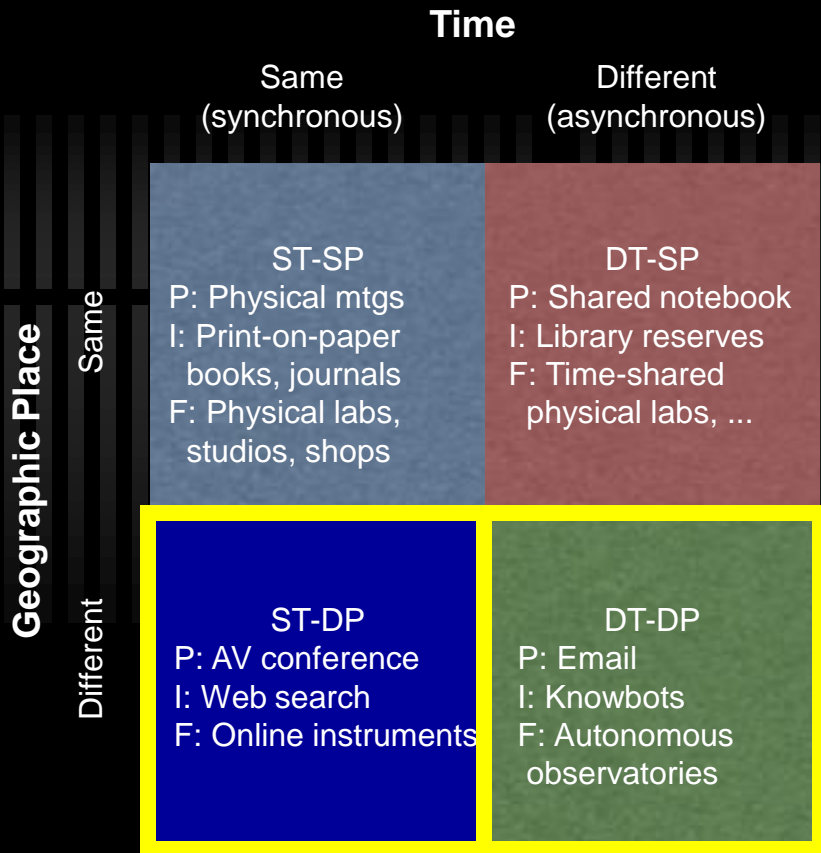
Science 2.0

Science 1.0 → Science 2.0

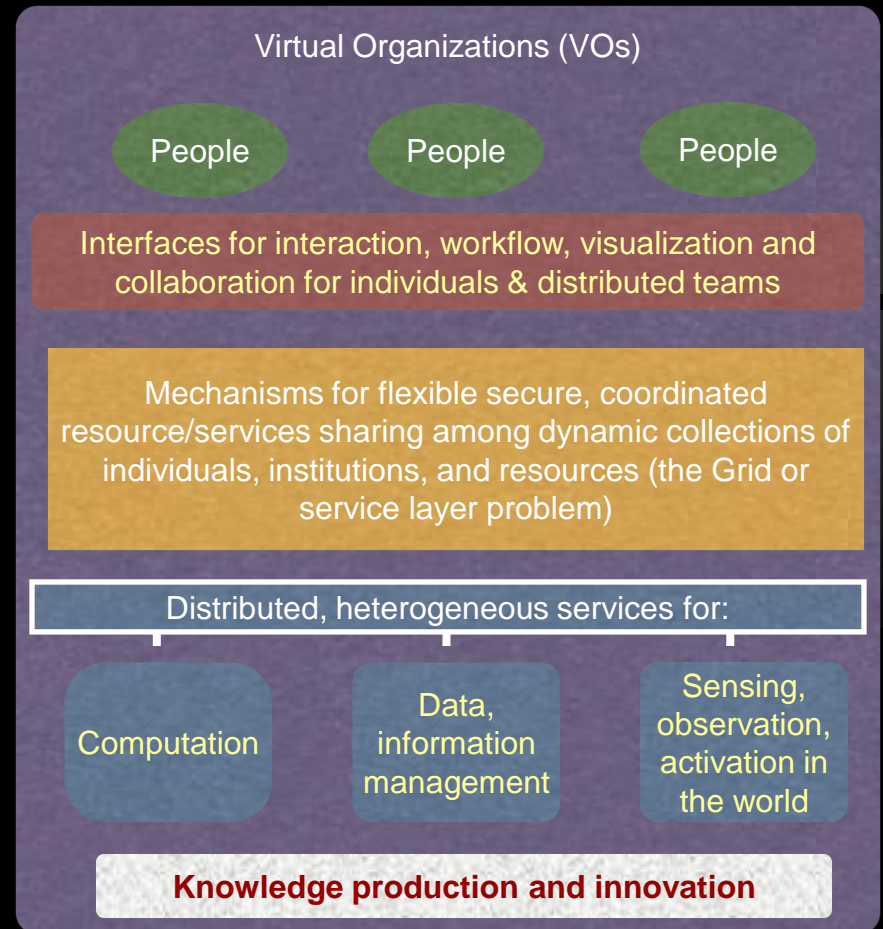


Megabytes & gigabytes	→ Terabytes & petabytes
Publications	→ Simulations and visualizations
Journals	→ Wikis, blogs, project WWW sites
Individuals	→ Collaborations (x-field, x-sector)
Collocated	→ Distributed
Community codes	→ Science gateways
Supercomputer centers	→ Campus & national grids, Internet
Makefile	→ Workflow
Computational science	→ Science as computation
Mostly physical sciences	→ All sciences (& humanities)
1000s of computationalists	→ Millions of researchers
Government funded	→ Government & industry funded

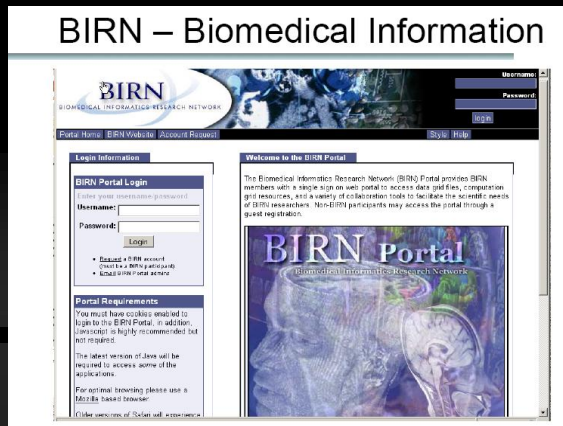
F2F → Virtual



P: people, I: information, F: facilities, instruments



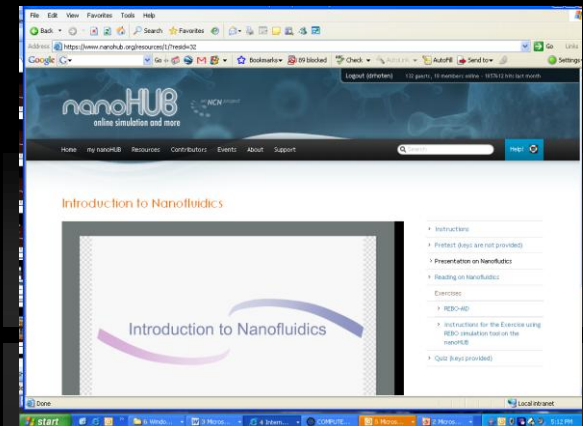
Virtual examples of Science 2.0



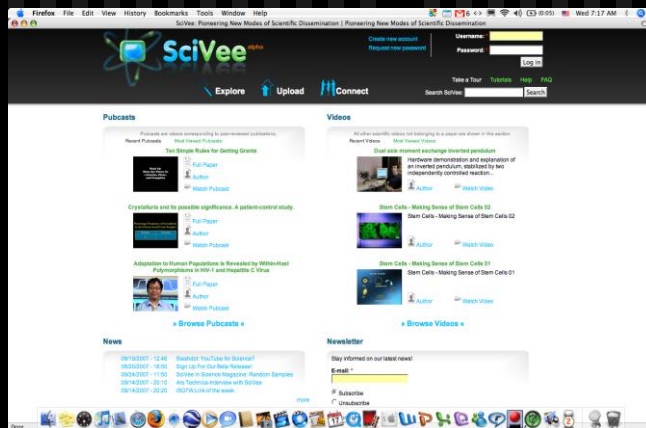
Research Collaboratory



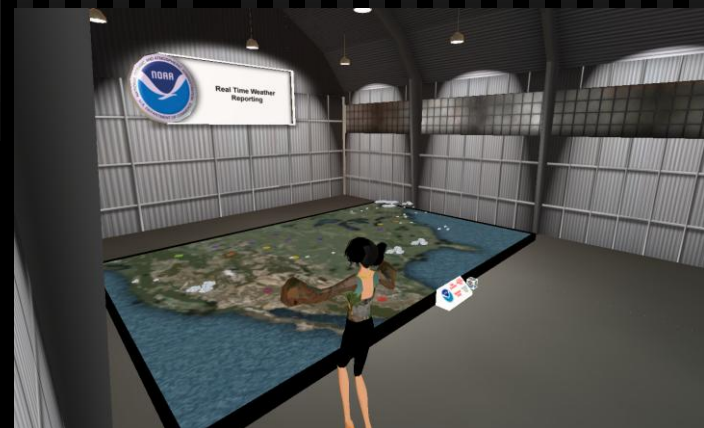
Virtual Observatory



Science Gateway



Science YouTube



3-D Virtual World