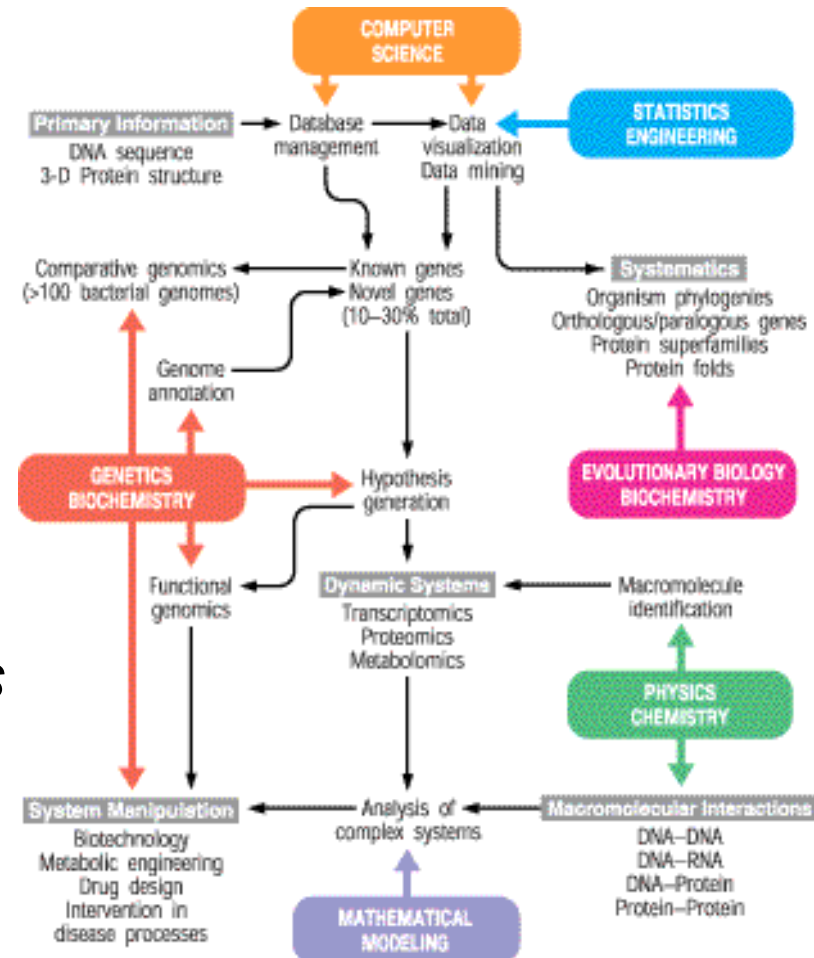




# Teams Sharing Data and Expertise



**Systems Biology:** “studying biological systems by systematically perturbing them (biologically, genetically or chemically); monitoring the gene, protein, and informational pathway responses; integrating these data; and ultimately formulating mathematical models that describe the structure of the system and its responses to individual perturbations” (Ideker et al., 2001 Annu. Rev. Genom. Hum. Genet. 2:343)



Konopka, 2004 *ASM News* 70:163



# Science Requirements for Networks - 2003



Science Areas	2003 <i>End2End</i> Throughput	5 years <i>End2End</i> Throughput	5-10 Years <i>End2End</i> Throughput	Remarks
High Energy Physics	0.5 Gb/s	100 Gb/s	<b>1000 Gb/s</b>	high bulk throughput
Climate (Data & Computation)	0.5 Gb/s	160-200 Gb/s	<b>N x 1000 Gb/s</b>	high bulk throughput
SNS NanoScience	Not yet started	1 Gb/s	<b>1000 Gb/s + QoS for control channel</b>	remote control and time critical throughput
Fusion Energy	0.066 Gb/s (500 MB/s burst)	0.198 Gb/s (500MB/20 sec. burst)	<b>N x 1000 Gb/s</b>	time critical throughput
Astrophysics	0.013 Gb/s (1 TBy/week)	N*N multicast	<b>1000 Gb/s</b>	computational steering and collaborations
Genomics Data & Computation	0.091 Gb/s (1 TBy/day)	100s of users	<b>1000 Gb/s + QoS for control channel</b>	high throughput and steering



# Delivering Climate Data



- Earth System Grid (ESG) provides production service (secure portal) to distribute data to the greater climate community.
  - Over 18 terabytes (~40k files) published since December 2004
  - About 300 projects registered to receive data
  - Over 22 terabytes of data downloaded (~125K files) with 300 gigabytes daily.
- Analysis results of IPCC data, distributed via ESG, were presented by 130 scientists at a recent workshop (March 2005).

## Enabling Access to Climate Data from the Intergovernmental Panel on Climate Change

