

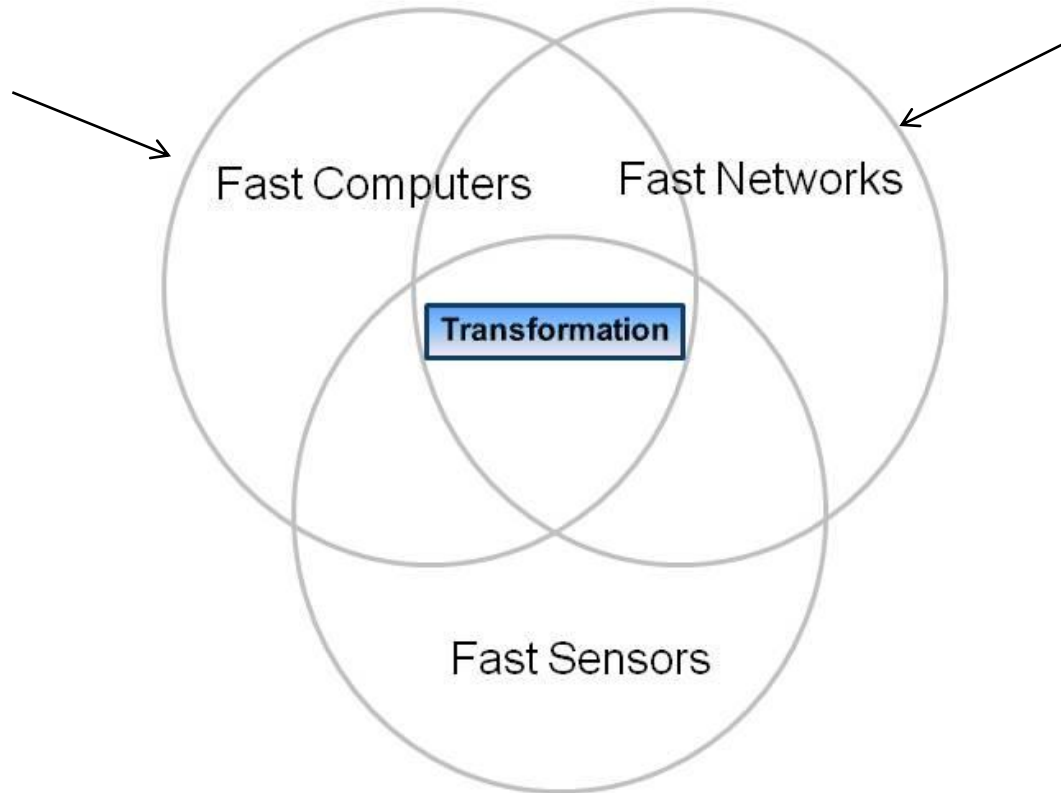
# Part I – Some Context

- How did we get here?
  - Transactional Cost Economics
  - Technology
    - Fast computers, Fast Networks
- A Few Interesting Questions (at least they're interesting to me)
  - Everything's an intermediate step, nothing in the center
  - I never knew clouds at all
  - Fast Sensors
- So What's the Government Going to do About All This

# Transactional Cost Economics

- What do you know about Ronald Coase?
- He provided an explanation for the economic basis for a corporation 's existence
  - The higher the cost for a 'transaction', the more advantageous to integrate that capability internal to the corporation
- BUT – when transactional costs are reduced dramatically by the impact of the Internet, what then?
- For example, Proctor and Gamble ...

# The Immersive Internet



# **Ptolemy Versus Copernicus**

**From earth centered to Sun centered to nothing centered**

# How I Would Like to Look At Clouds

- Everything is a cloud
- Your desktop computer is a cloud – just not a very optimized one
  - It is, in fact, a private cloud
- A typical server is a community cloud
  - Multiple users who have some affinity
- Your browser accesses a public cloud
- You are a private cloud
- Your company is a community cloud
- Your industry may be a community cloud or a public cloud

# Cloud Computing

	Approach	Governance	Security	Economics
Private	Virtualization	1	User Self-Managed	Expensive
Community	Andy Hardy	➤1	User Coordinated	Varies
Public	We hug your servers so you don't have to	None	Provider created (reputational environment)	Inexpensive

- Over time when is it possible to avoid moving to the public cloud?
  - Security clearances enable a community cloud
  - Oligopolies can achieve a community cloud

# What Happens As We Add Fast Sensors?

- With the addition of fast sensors to the fast computers and fast networks that are now in place in much, though not all, of the country
  - Sensors become participants in the network, not just passive receptors of instructions or senders of data
  - It becomes possible to perform real-time simulations in real-time with real-time data
- And thus virtual environments and ‘real’ environments being to comingle
  - Becomes possible to emulate accurate representations of reality in real-time for interpretation and management
  - The implications are enormous and hard to predict

# Government Issues

- Private-Public Partnership
  - What does that mean
  - Governance process; private membership?
  - Public leadership? White House, DHS, Commerce?
- Tie cyber issues to financial?
  - Risk ratings? Re-insurance?
- At least three different pieces of legislation are, or will be, out there
  - Rockefeller – Snowe
  - Lieberman – Collins
  - House version
- Sharing vs Protection? Protection vs Resiliency?
  - How much can be kept out of the 'public' cloud?