

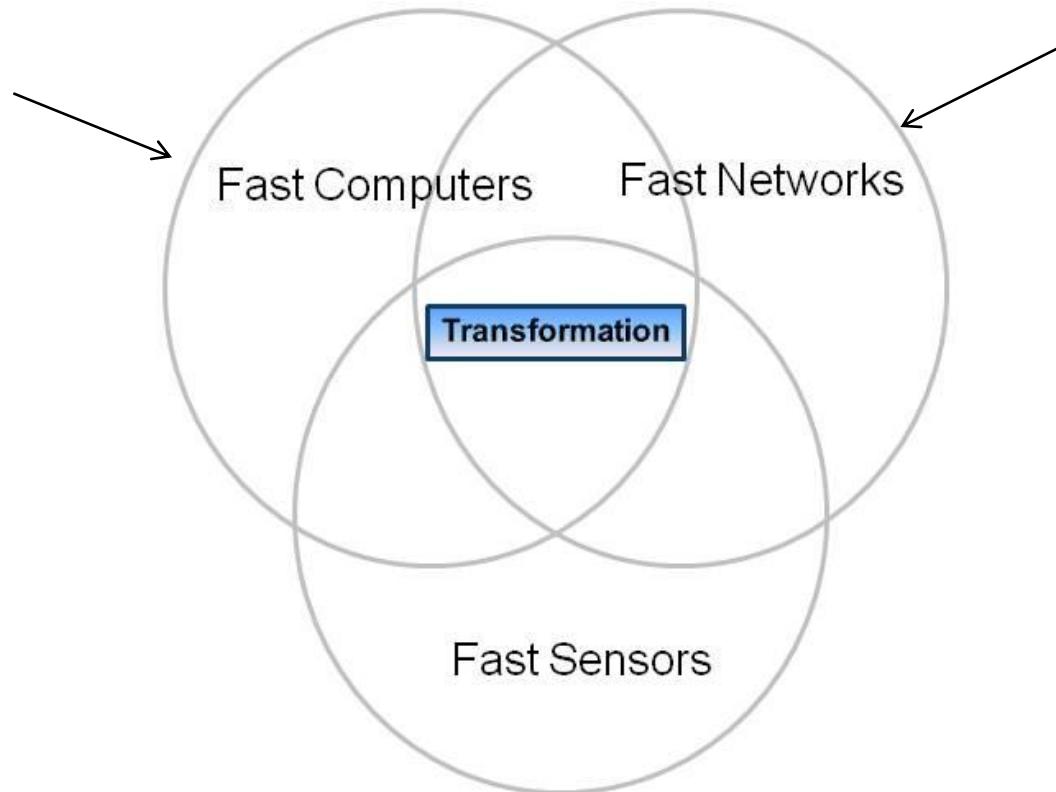
Part I – Some Context

- 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?