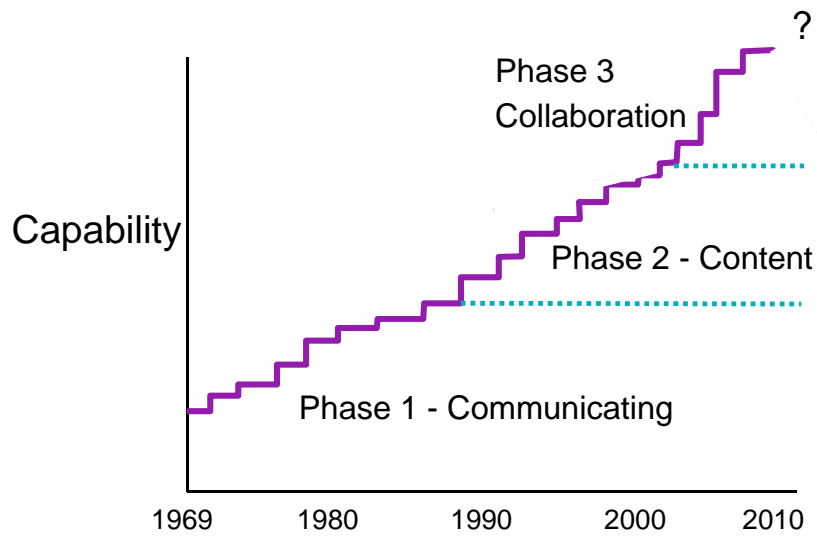


# The Crowd and the Cloud: Innovation and the Open Internet

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## The Third Phase of the Internet



### **What's New Now?**

- 1 billion PCs >> trillions of devices, sensors
- Communications media > Computing Platform
- Web >> Web Services, Grid
- One-to-one + One-to-many >> Many-to-many
- Megabit networks > all-optical gigabit networks
- WiFi >> broadband wireless (e.g. WiMax)
- Open standards openly developed + open source  
>> Users have a louder “voice”

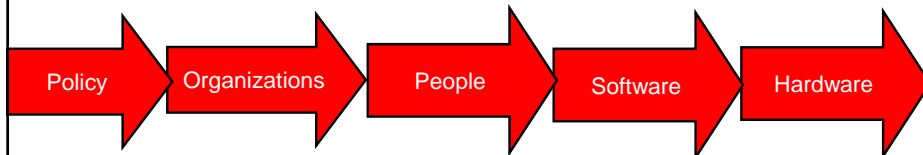
### **What this Means for Users**

- Cheap Revolution
- More reliable platform for computing, storage, collaboration, etc.
- Applications
  - Virtual Worlds, immersive environments
  - Sensor networks
  - Mash-ups and beyond
- Pew Internet and American Life survey

### Four very important books

- *Closing the Innovation Gap* by Judith Estrin
- *The Big Switch: Rewiring the World, from Edison to Google* by Nicholas Carr
- *The Future of the Internet - and How to Stop It* by Jonathan Zittrain
- CED report on openness by Elliot Maxwell  
[http://www.ced.org/docs/report/report\\_ecom\\_openstandards.pdf](http://www.ced.org/docs/report/report_ecom_openstandards.pdf)

### Policy, the Rate-limiting step



## Where to Focus?

Net Neutrality focuses on the network

I'm much more worried about what's happening "higher in the stack" (middleware, applications)

Policy makers need to:

- Foster the open Internet
- Avoid regulations that limit competition and innovation
- In the past, too many government policies have unintentionally limited openness
  - Procurement policies that specify one vendor rather than requiring interconnection and interoperability
  - Universal service subsidies and requirements that reduce competition
  - Patent policies that delay standards and are used to block competition
  - ROR regulation that discourages investment

## Formula for Effective Cloud Policy

$$C + (OS_1)(OS_2) = I + (Ch_1)(Ch_2)$$

Where:

C = Competition

OS<sub>1</sub> = Open Standards

OS<sub>2</sub> = Open Source

I = Innovation

Ch<sub>1</sub> = Choice

Ch<sub>2</sub> = Cheap

## **10 P's of Digital Policy**

- Privacy
- Piracy
- Pornography
- Protection
- Pricing
- Policing
- Psychology
- Procurement
- Payments
- Protectionism