



CLOUD COMPUTING CONCEPTS

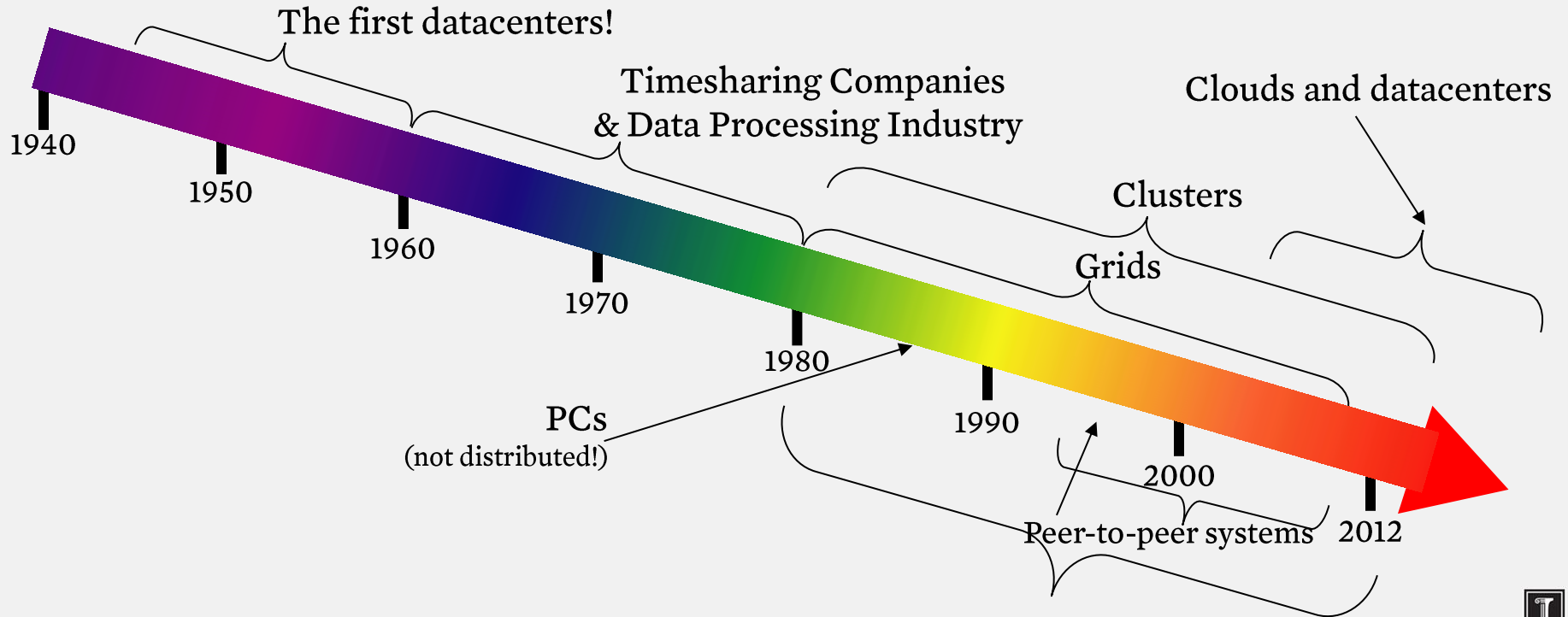
with Indranil Gupta (Indy)

INTRODUCTION TO CLOUDS

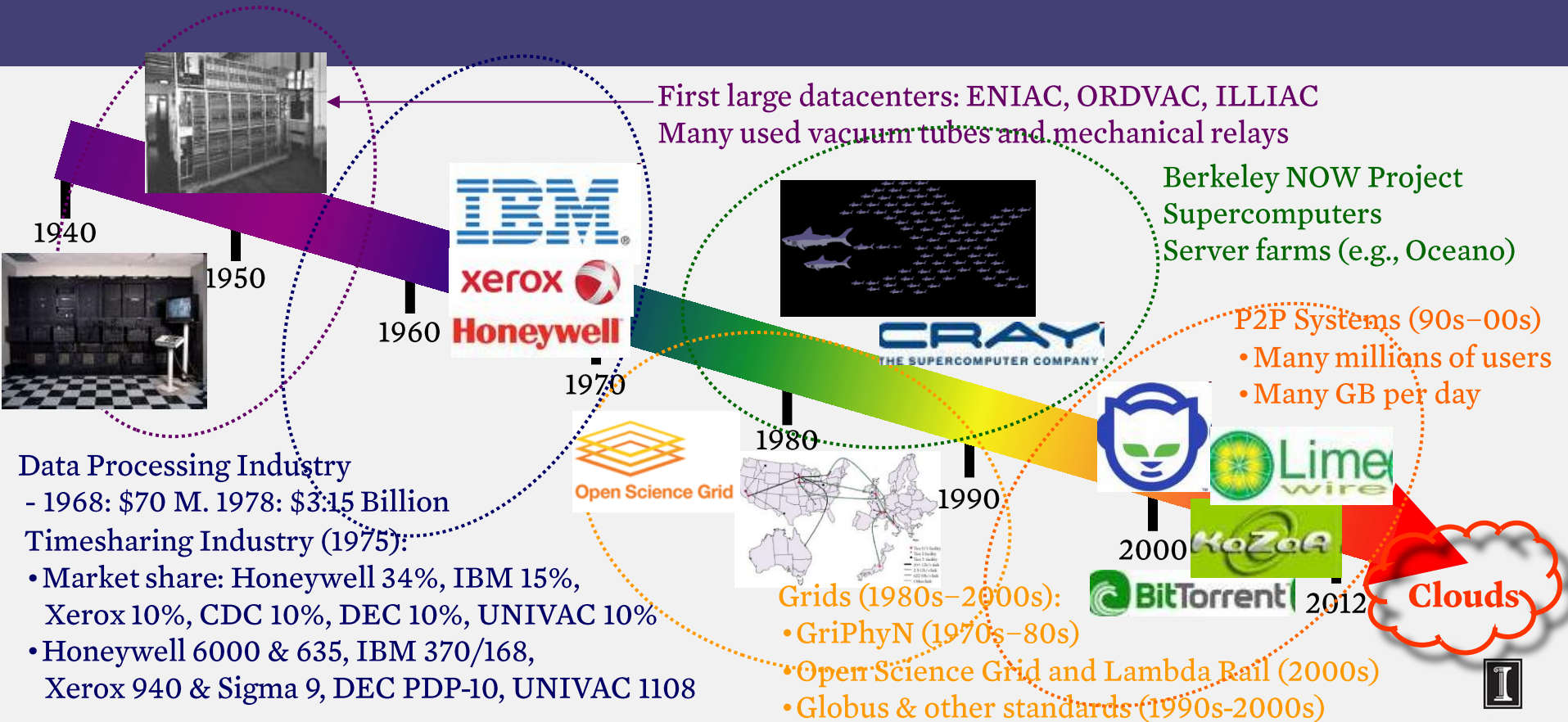
Lecture C

HISTORY

"A CLOUDY HISTORY OF TIME"



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TRENDS: TECHNOLOGY

- Doubling periods – storage: 12 months, bandwidth: 9 months, and (what law is this?) CPU compute capacity: 18 months
- Then and Now
 - Bandwidth
 - 1985: mostly 56Kbps links nationwide
 - 2012: Tbps links widespread
 - Disk capacity
 - Today' s PCs have TBs, far more than a 1990 supercomputer



TRENDS: USERS

- Then and Now
 - Biologists:
 - 1990: were running small single-molecule simulations
 - 2012: CERN' s Large Hadron Collider producing many PB/year



PROPHECIES

- In 1965, MIT's Fernando Corbató and the other designers of the Multics operating system envisioned a computer facility operating "like a power company or water company."
- **Plug** your thin client into the computing utility **and play** your favorite Intensive Compute & Communicate Application
 - Have today's clouds brought us closer to this reality? Think about it.

