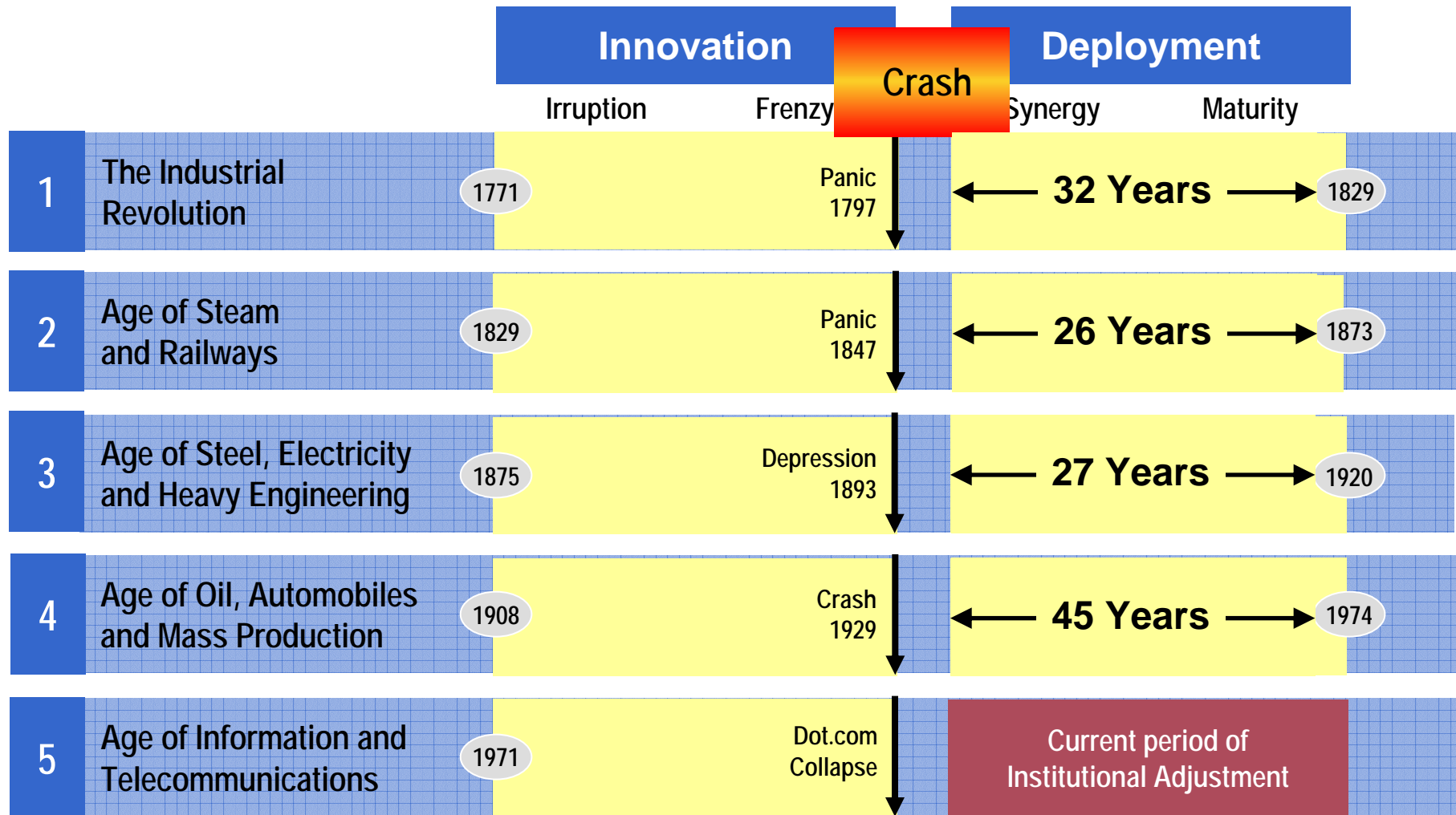# Grid@Large Workshop Panel

*Making real large-scale grids for real money-making users:
why, how and when?*

Jean-Pierre Prost
Senior Technical Staff Member
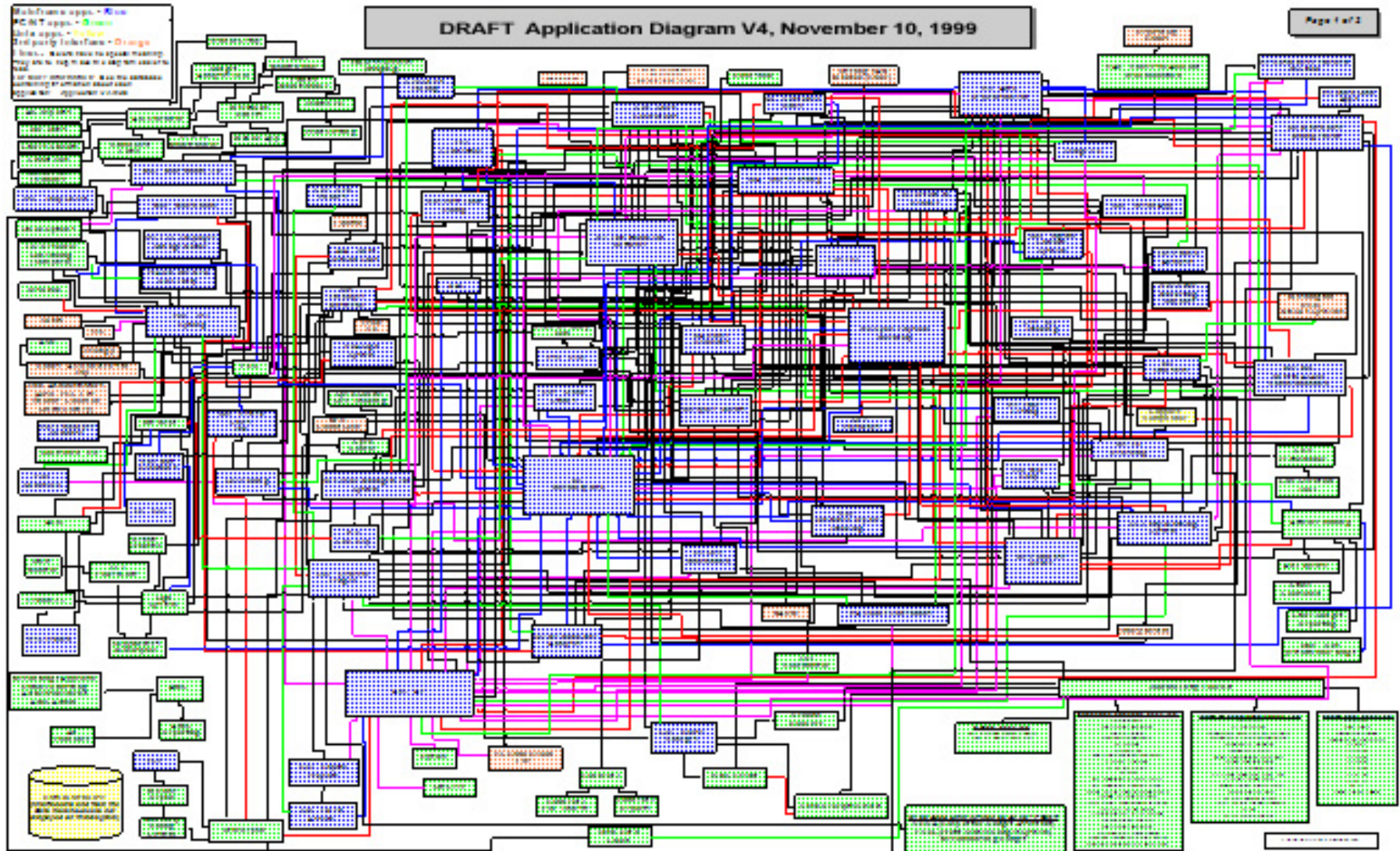*IBM Montpellier, France*

The Deployment Phase lasts 26 to 45 years …

		Innovation		Crash	Deployment	
		Irruption	Frenzy		Synergy	Maturity
1	The Industrial Revolution	1771		Panic 1797 ↓	← **32 Years** →	1829
2	Age of Steam and Railways	1829		Panic 1847 ↓	← **26 Years** →	1873
3	Age of Steel, Electricity and Heavy Engineering	1875		Depression 1893 ↓	← **27 Years** →	1920
4	Age of Oil, Automobiles and Mass Production	1908		Crash 1929 ↓	← **45 Years** →	1974
5	Age of Information and Telecommunications	1971		Dot.com Collapse ↓	Current period of Institutional Adjustment	

Source: "Technological Revolutions and Financial Capital", Carlota Perez, 2002

CIO's Reality

DRAFT Application Diagram V4, November 10, 1999

Current Situation in Grid Computing

- **Most commercial Grids today are application Grids or enterprise Grids**
- **Large scale Grids are mainly academic**
- **Some of the inhibitors for larger scale deployment of commercial Grids:**
  - Limited QoS (performance, security, availability) guarantees
    - No real deadline scheduling available
    - End to end security is still an issue
    - Resources may come and go at any time
  - Governance issues (people are not used to share)
  - No clearly defined business model for dynamic application/service outsourcing
  - No standards yet for QoS goal expression and negotiation
  - Standards in web services security are still emerging

How and When?

- **Provide compute/storage/network capacity on demand**

- **Provide service/application outsourcing on demand**

- **Rebalance variable and fixed IT costs**

- **Enable more flexibility and adaptability of the IT to fulfill business needs**

- **When enterprise will see a definite business value to dynamic outsourcing that:**

  - Provides QoS guarantees

  - Is standards based

  - Proposes a simple pricing model

  - Is cheaper than before with predictable costs

  - Can be enabled quickly and reliably

- **We are not there yet… How long will it take?**