

# The Engineering Economics of Open Source Software



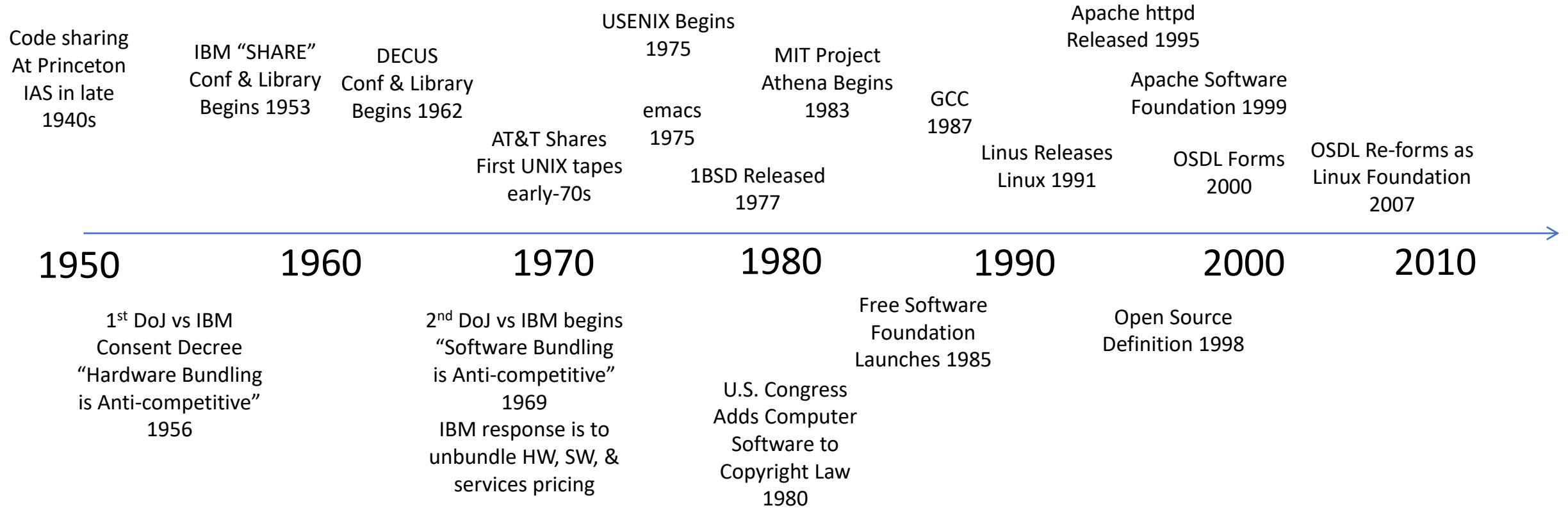
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Open Source Software is about Engineering Economics

Open Source Software is about Engineering Economics  
(There is NO 'Open Source' Business Model)

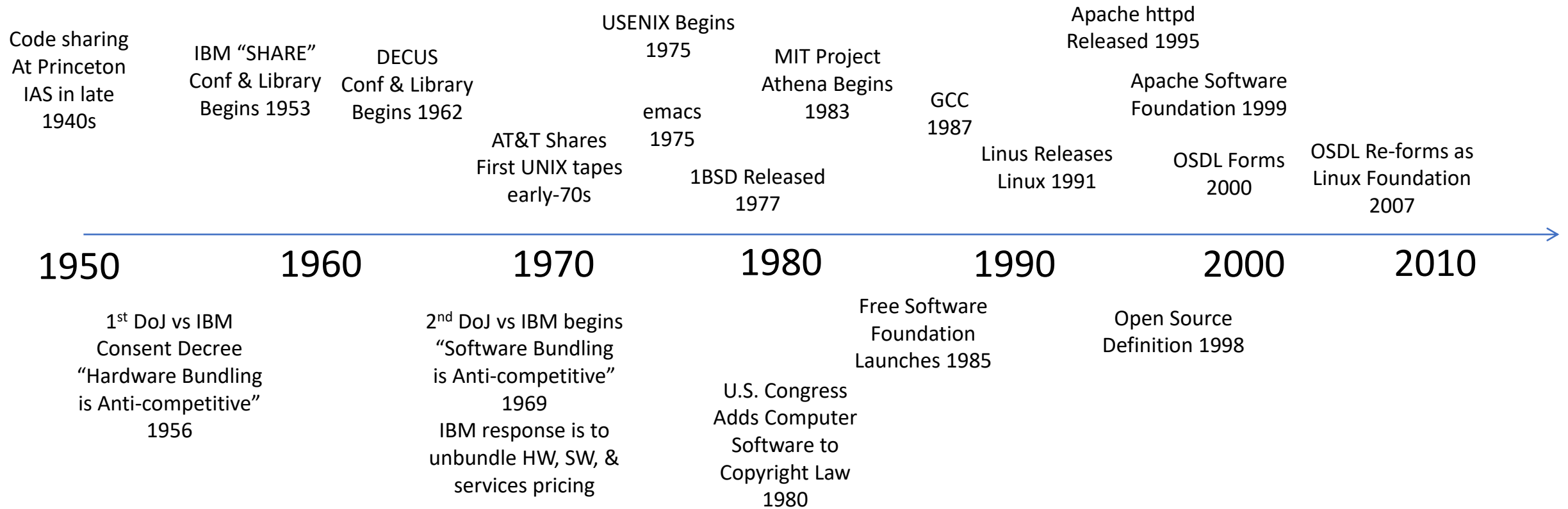
Collaboratively-Developed Liberally-Licensed Software is  
about Engineering Economics

# We've shared software since we've written software

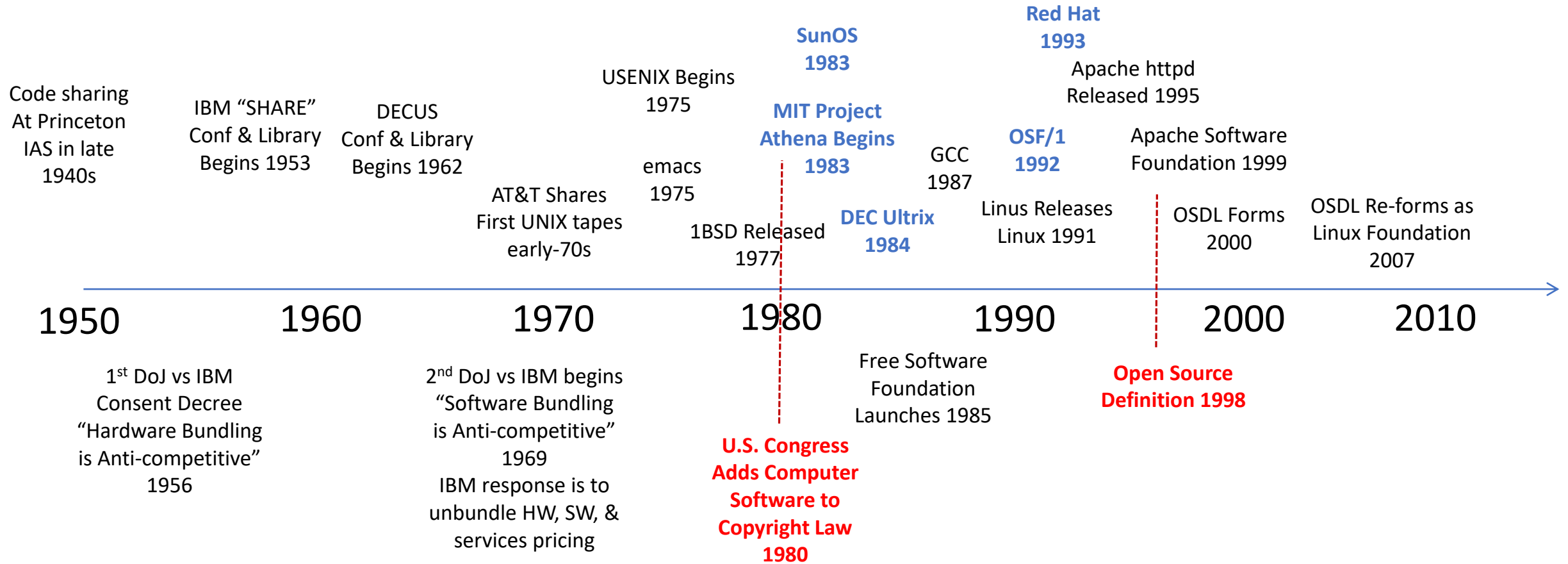


# We've shared software since we've written software

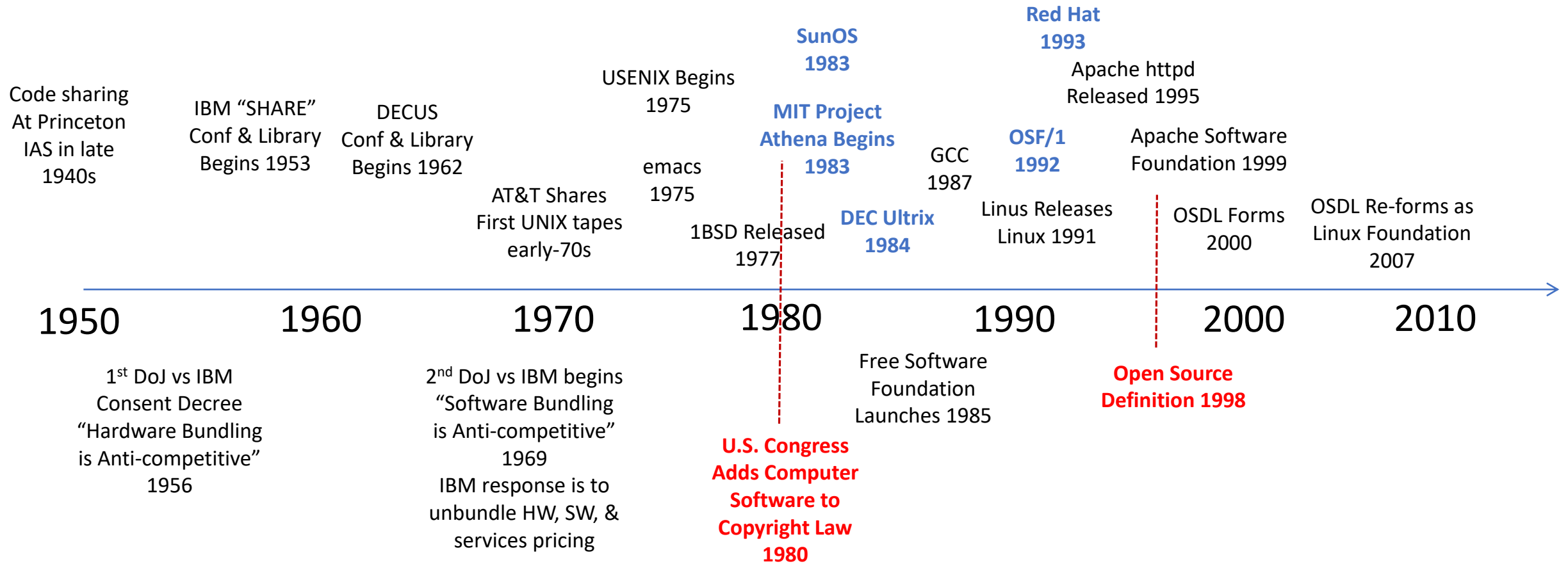
## Writing good software is hard work



# Copyright Law forced almost 20 years of license experiments to allow us to keep sharing



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And gave us the Open Source Definition 20 years ago



Collaboratively-Developed Liberally-Licensed Software is  
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[illegible]

Interix + gcc =  
~\$100,000  
for \$10M  
value capture  
(10<sup>2</sup>)

Interix + ACT  
~\$140,000

[illegible]

[illegible] $10^3$

Build vs. Buy

Build vs. Buy vs. (Borrow & Share)

Open Source Software is about Engineering Economics



# Software Business

Projects are not Products

**Projects** are interesting buckets of technology developed collaboratively by like-minded engineers

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**Products** solve customer problems and money is exchanged for perceived value

**Projects** have communities  
Communities have time and no money

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**Products** have customers  
Customers have money and no time

# Community

- Will contribute time to solve their problems
- Look to community and **project** for solutions
- Community wants transparency, meritocracy, and agency
- Need guidance and tool support
- **Become technology advocates**
- **Become knowledgeable experts**
- **Make your solution sticky**

VS

# Customer

- **They want to buy something**
- Look to the **product** to solve their problems
- Customers have expectations based on a cost
- Community/project is a test for product
- May participate in community

Build vs. Buy vs. (Borrow & Share)



Build vs. Buy vs. Borrow & Share

Build vs. Buy vs. Community

Build vs. Product vs. Project

# Build vs. Product vs. Project

RHEL, Docker EE,  
GKE, AKS, DC/OS,  
Cosmos DB,  
Azure Managed MySQL,  
NGINX Plus, NGINX Controller,  
N|Solid, Zulu, Zing

Debian, Fedora, Moby,  
Kubernetes, OpenStack, Mesos,  
Postgres, MariaDB,  
Apache httpd, NGINX,  
Node.js, OpenJ9,  
Go, Python, Rust

Open Source Software is about Engineering Economics

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There is NO 'Open Source' Business Model

# A Story of Red Hat in Three CEOs



1994

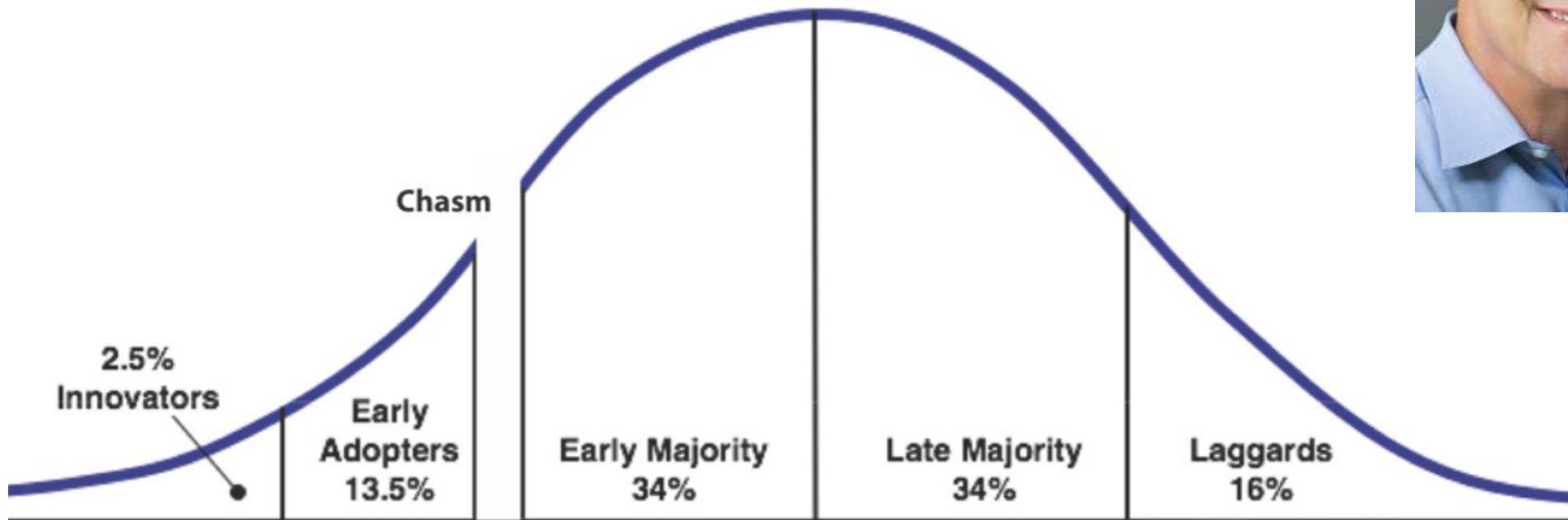


1999



2008

## Technology Adoption Life Cycle

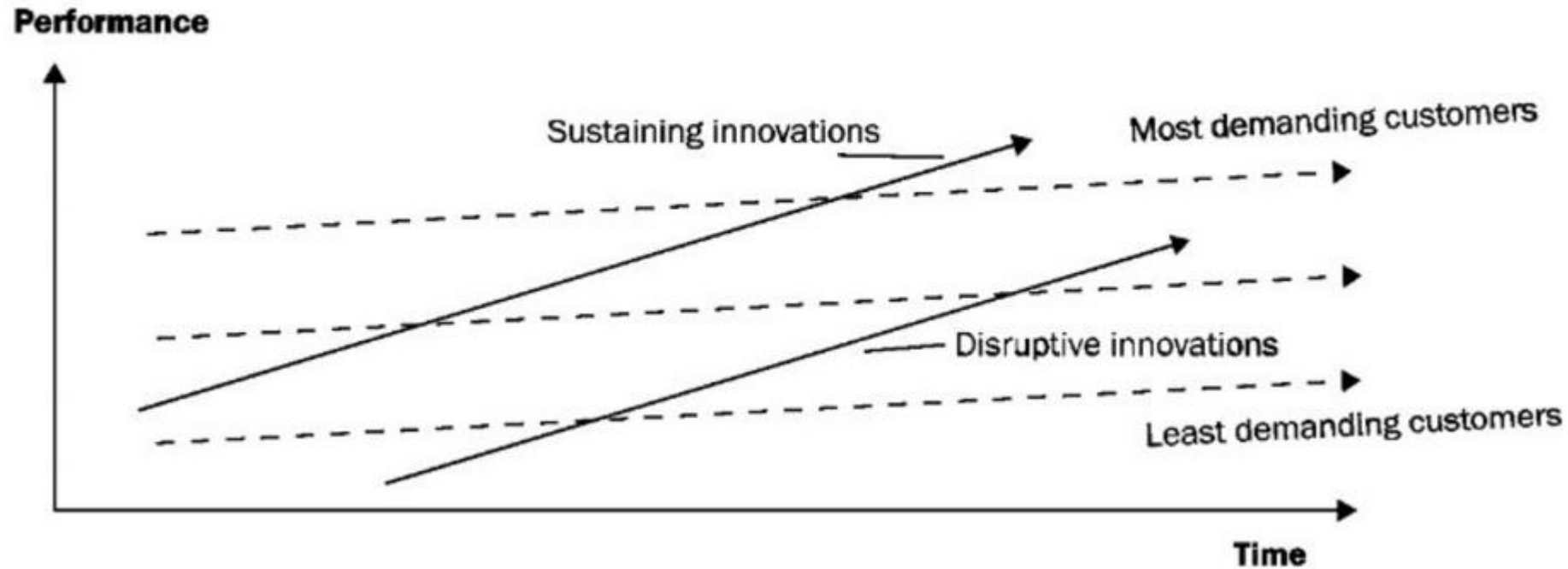


Books:  
Crossing the Chasm, Dealing with Darwin



## EXHIBIT 1

### The Theory Of Disruptive Innovation



**SOURCE:** C.M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (Boston: Harvard Business School Press, 1997).

Books:  
The Innovator's Dilemma, The Innovator's Solution



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Thank you!

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