

# The Software Industry

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# Software as a Product (Recap)

- **Product**
  - A man-made artifact sold to customers in a market
- **Software**
  - Has an open-ended life-cycle: Is born, may live forever
  - Typically requires upfront capital investment (development)
  - Is cheap and easy to reproduce perfectly
- **Software as a product**
  - A product sold to either enterprise or retail customers
  - What is sold is typically a usage right plus services

# The Software Industry

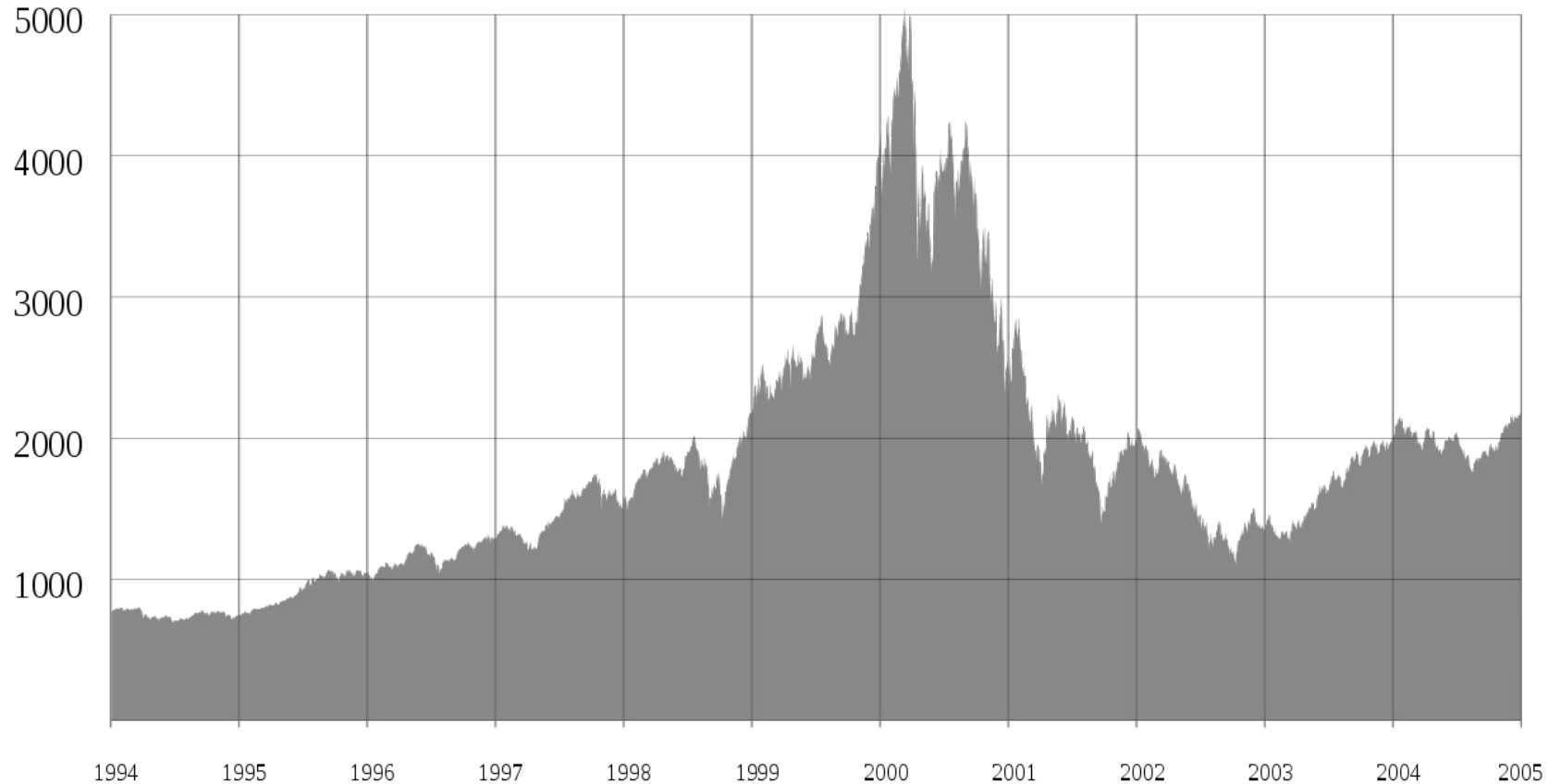
- The software industry
  - Is the set of business that provide
    - Software products and
    - Software services such as
      - Operating services
      - Consulting services
        - Development services
        - Implementation services
  - to other industries as well as itself
- The software industry
  - Is highly concentrated
  - Is highly internationalized
  - Has strong network effects
  - Has a high speed of innovation
  - Is rapidly expanding into new domains

# The Software Industry in 2016 [1]

market capitalization	total	\$1.298 trillion
	median	\$744.2 million
	highest	\$415.4 billion (Microsoft)
	lowest	\$177700 (Innovaro Inc.)
earnings per share	median	\$0.20
	highest	\$13.23 per year (IBM)
	lowest	– \$3.40 per year (Wave)
dividend yield	mean	8.913%
	highest	170.3% (Aware)
	lowest	0.07106% (FICO)

[1] <https://www.wolframalpha.com/input/?i=how+big+is+the+software+industry>

# The So-called “Dot-Com” Bubble and Burst (1995-2000)



## The CEO Interview

“Industrial companies are in the information business whether they want to be or not.”

—Jeff Immelt

McKinsey&Company



# Short History of the Software Industry

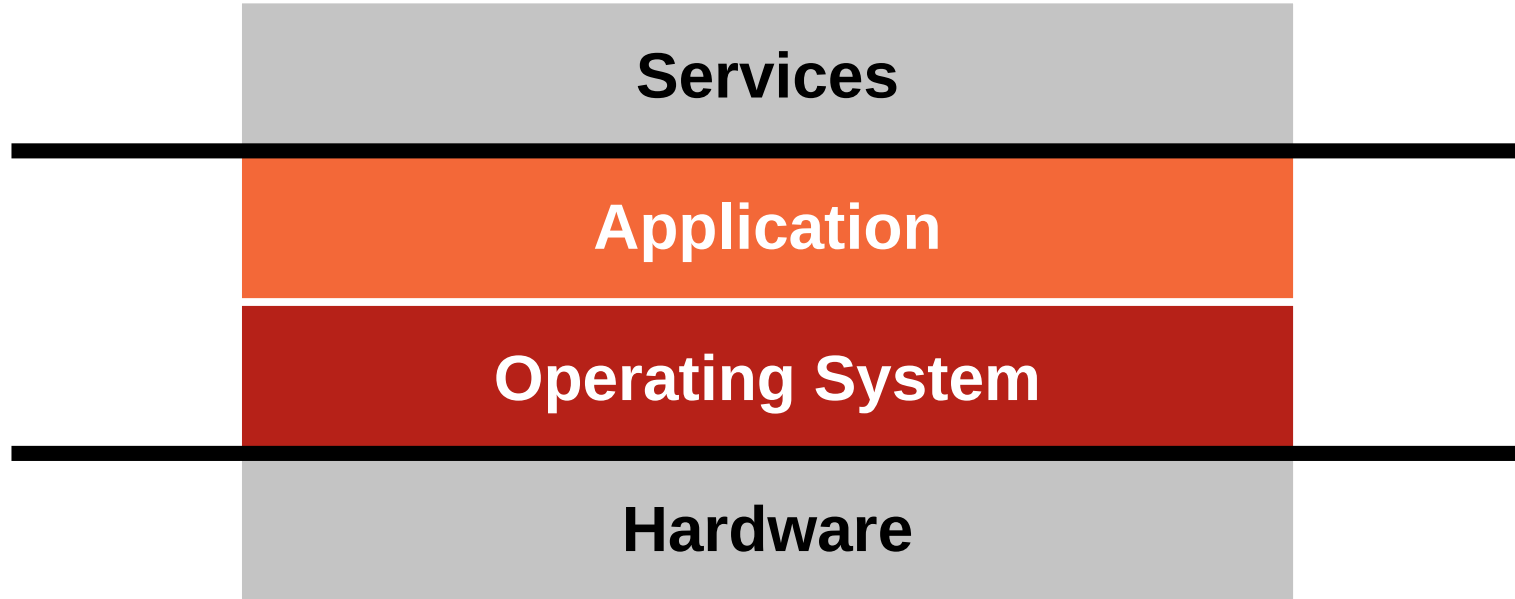
- **1959**
  - First mentioning of term “software”
- **1969**
  - US DoJ separates hard- from software
- **1980ties**
  - From vertical to horizontal integration
  - Growth of platforms and ecosystems
- **1990ties**
  - Centralization, dominance of Windows
- **2000ties**
  - Diversification, multiple platforms
  - Growth of open source software
- **2010ties**
  - Back to vertical, cloud computing

# Main Industry Players

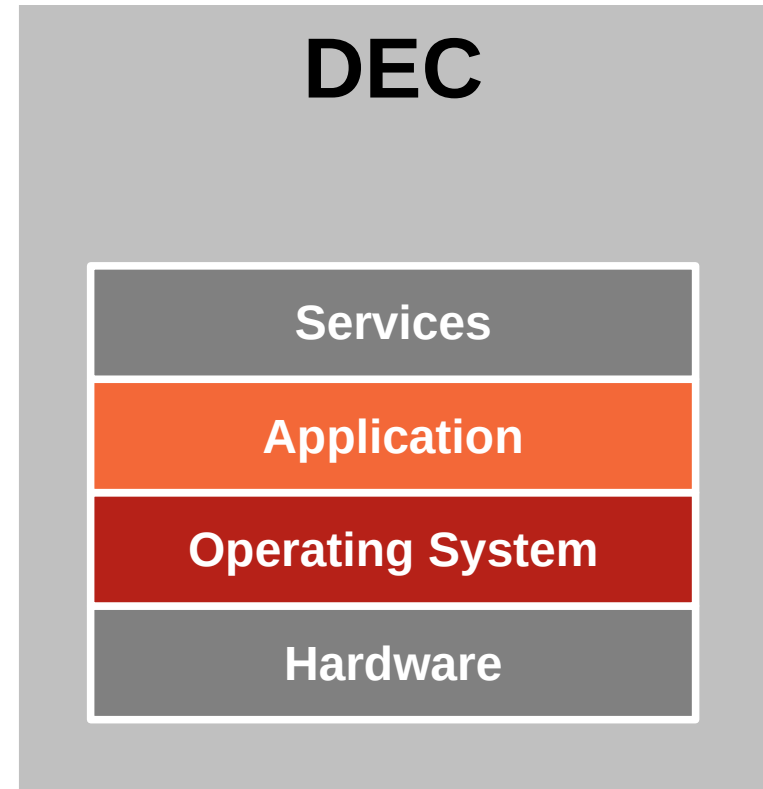
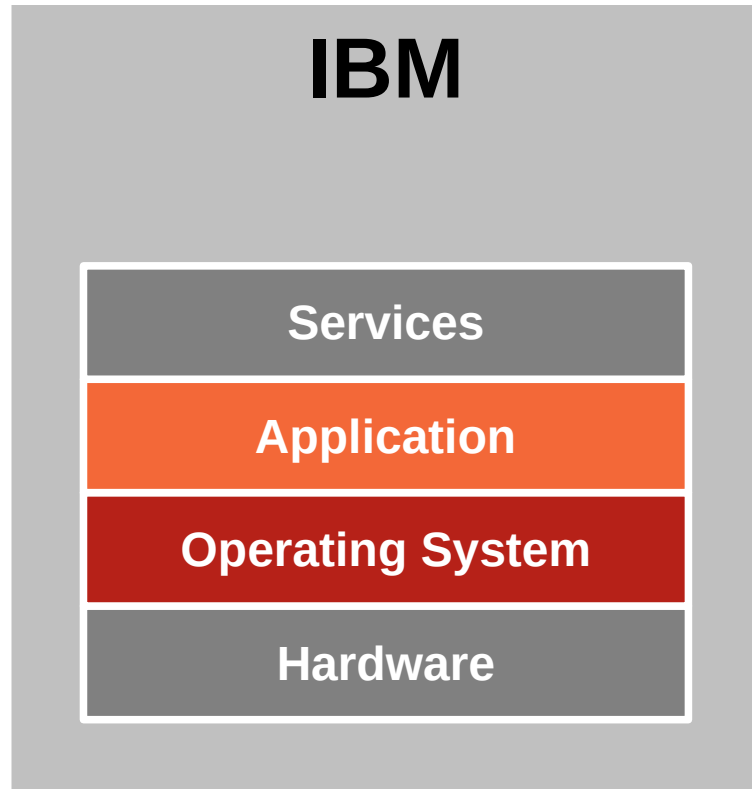
- **Software vendors**
  - Produce products
    - A.k.a. “standard software” or “commercial off-the-shelf software” (COTS)
- **Operating services firms**
  - Operate any form of software (and hardware)
- **Development services firms**
  - Produce custom software
- **Implementation services firms**
  - Adjust software products for use by customers
- **Regulatory bodies**



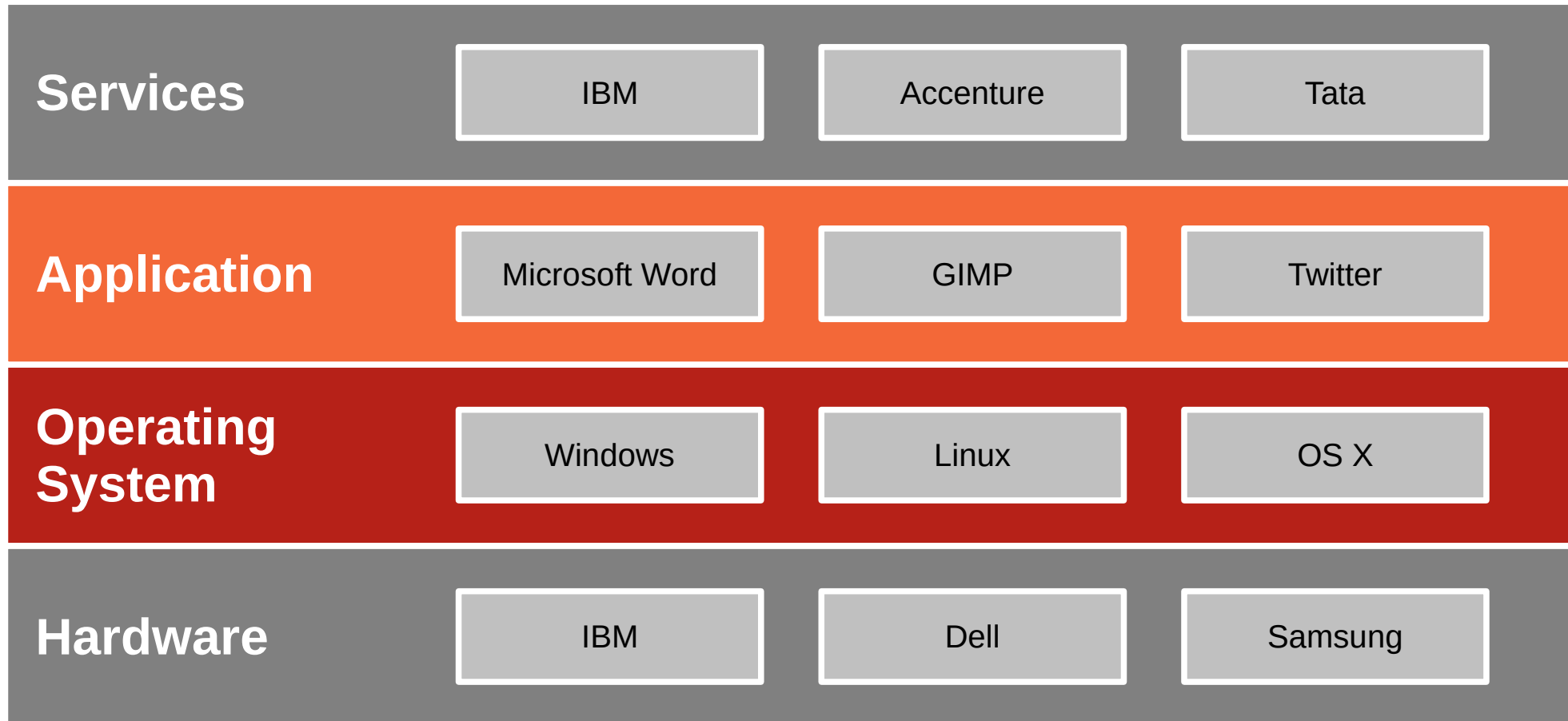
# Customers Buy a “Solution”



# Vertical Integration (Until 1980ties)

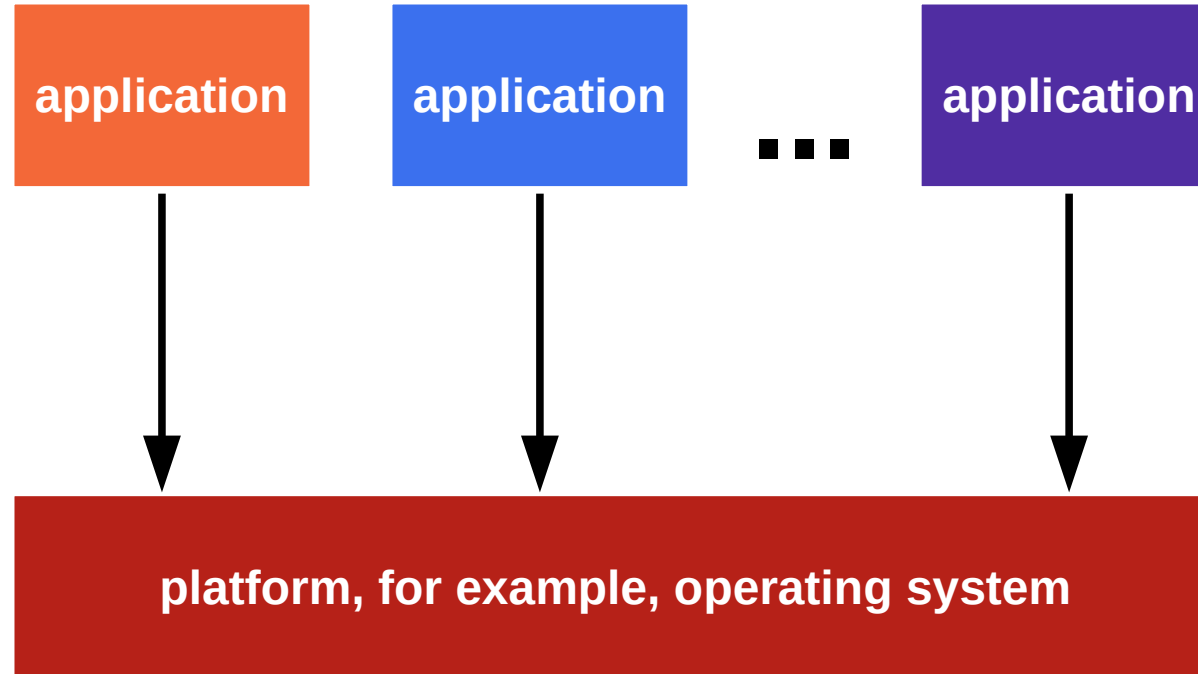


# Horizontal Integration (Since 1990ties)



# Categories of Software Products

- **Applications**
  - Software that is not built upon
  - Top-layer of the solution stack
- **Platforms**
  - Software that is built upon
  - Everything that is not the top layer
- **Why does everyone want to be a platform?**



- Software platform
  - Is an environment for the development and deployment of applications
    - Implies split between applications on top of the platform
  - Is a full set of application-independent life-cycle functions for applications
    - Among many components, the largest collection (i.e. not just a library)
- Customer (user) value of software platforms
  - By definition, a platform in itself is useless
  - Customer value is only created by applications

# Software Platforms as a Product

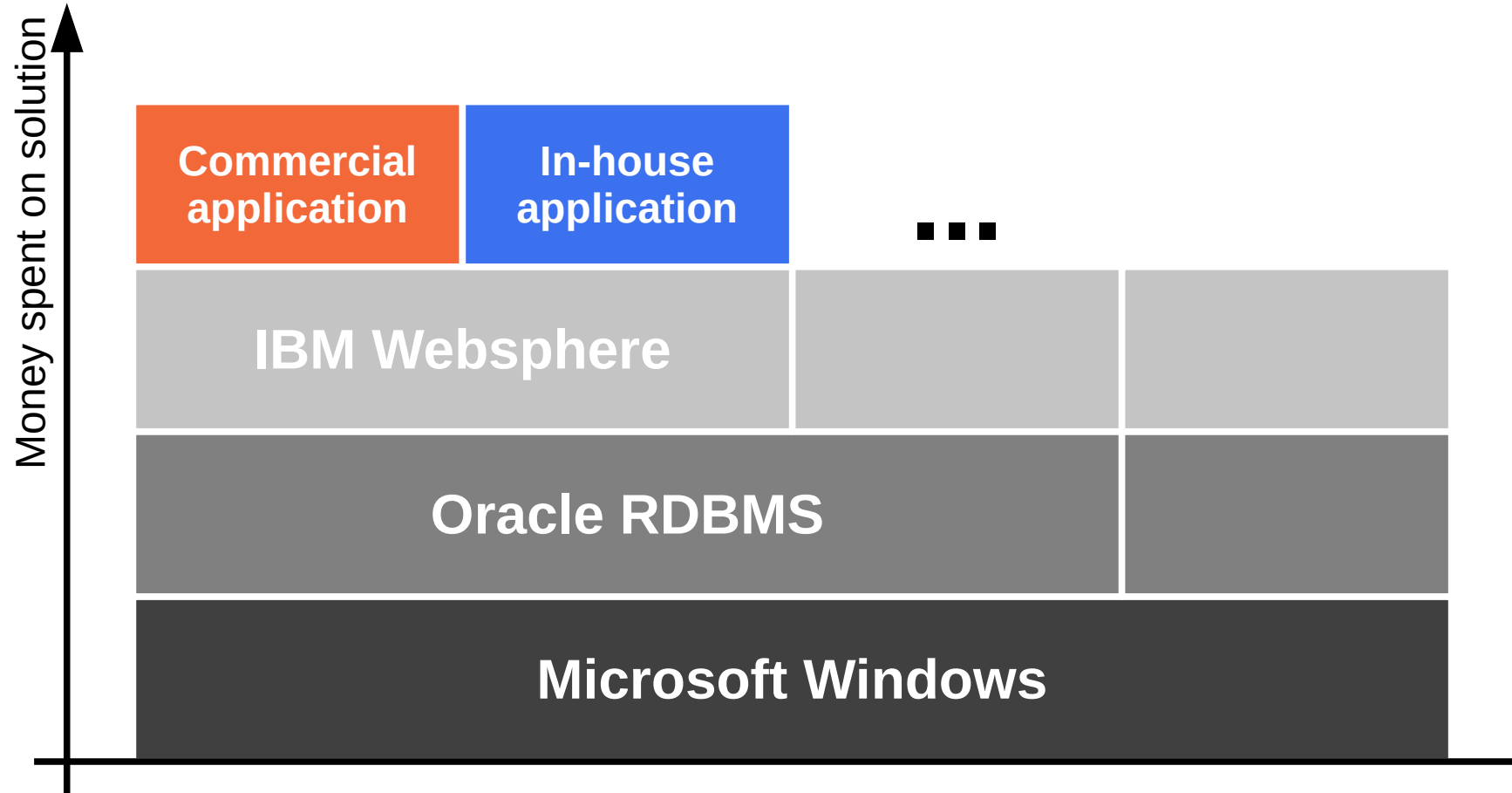
- Platforms are valuable
  - Platforms are needed by the applications running on top of it
  - Platforms can simplify IT department operations costs
- An application license sale implies a platform sale

# Pricing Power 1 / 2



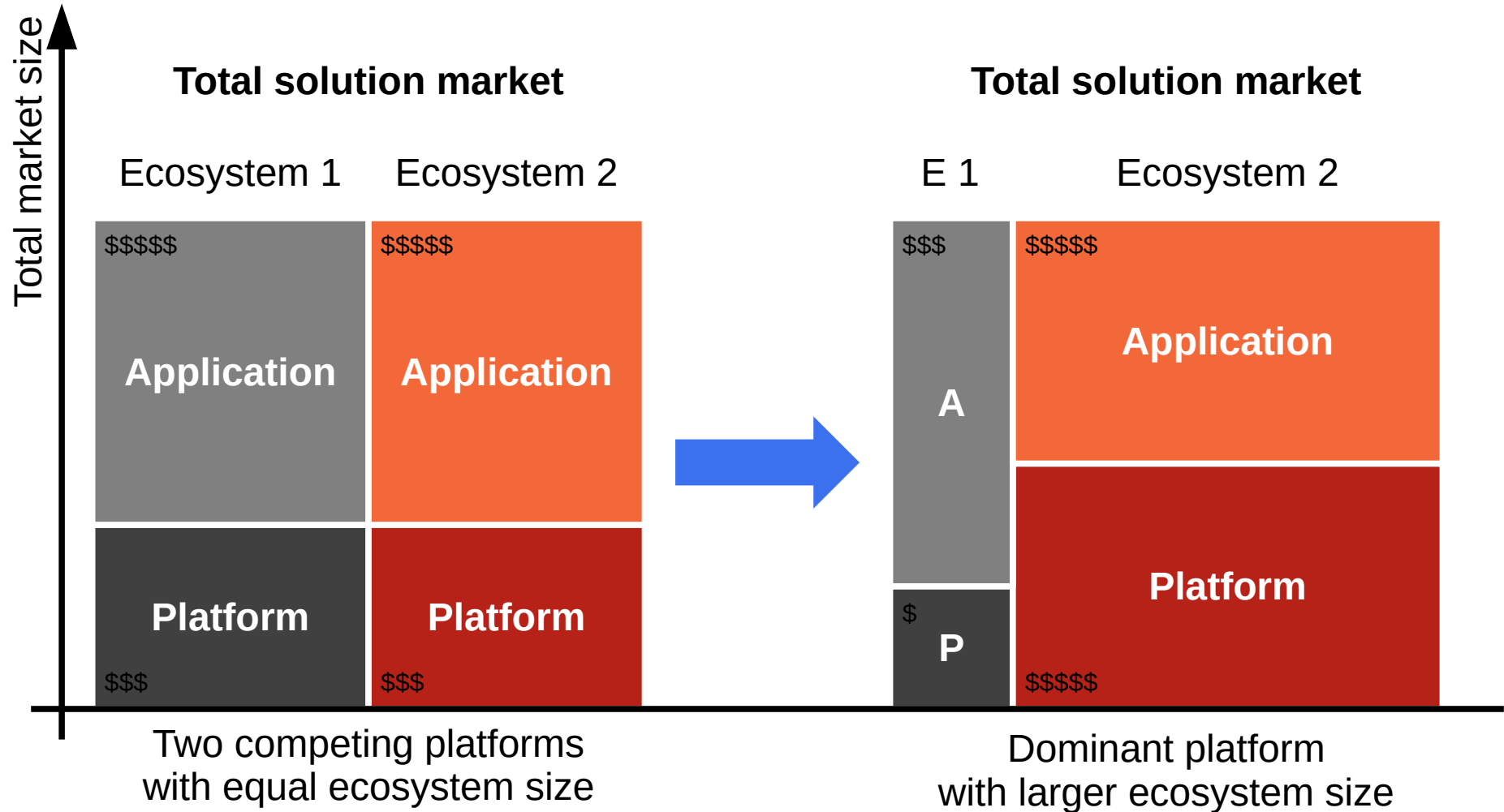


# Pricing Power 2 / 2

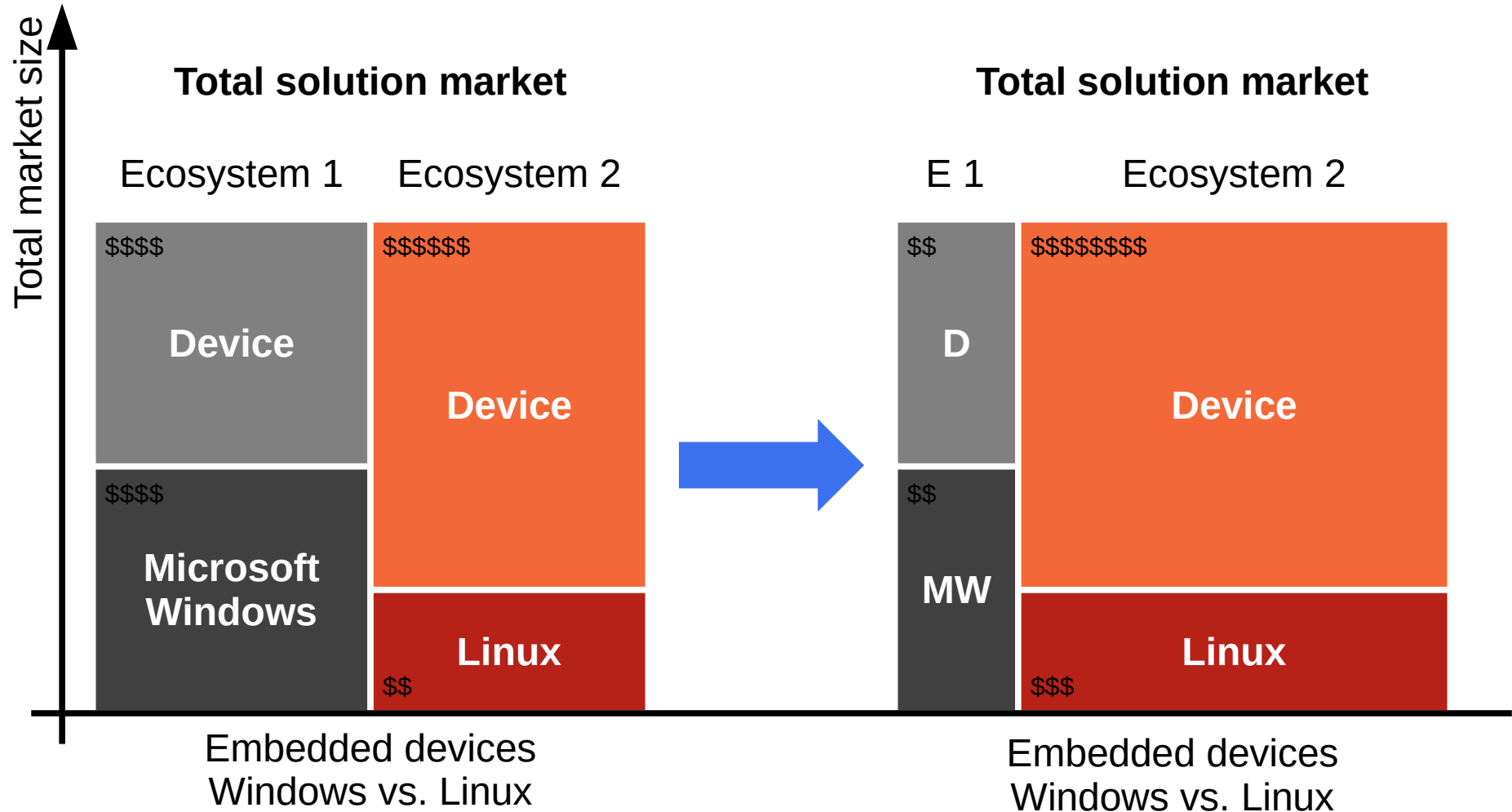


- **Software ecosystem**
  - The totality of actors (businesses and individuals),
  - software applications and components,
  - their relationships and goals
  - for a software platform

# The Software Ecosystem Wars



# Open Source in the Ecosystem Wars



- **A business model**
  - Is a summary description (model) of how a business' elements and their relationships interact to help the business achieve its strategic goals
  - Example elements are products, partners, people, positions, etc. and example relationships are the processes that govern their interaction
- Cf. marketing requirements document (MRD) a.k.a. business plan

**Key Partners**

**Key Re-  
sources**

**Key  
Activities**

**Value  
Proposition**

**Channels**

**Customer  
Relationships**

**Customer Segments**

**Cost Structure**

**Revenue Streams**

	2011 (\$m)	Percentage
<b>Revenues</b>	\$1.657	100%
Subscription and Support	\$1.551	94%
Professional Services etc.	\$106	6%
<b>Cost of Revenues</b>	\$324	20%
Subscription and Support	\$208	13%
Professional Services etc.	\$116	7%
<b>Gross Profit (and Gross Margin)</b>	\$1.333	80%
<b>Operating Expenses</b>		
Research and Development	\$188	11%
Sales and Marketing	\$792	48%
General and Administrative	\$256	15%
<b>Total Operating Costs</b>	\$1.236	74%
<b>Operating Profit (and Operating Margin)</b>	\$97	6%

Source: Michael A. Cusumano. Reflecting on the Facebook IPO. CACM 10, 2012.

# Review / Summary of Session

- The software industry
- Software platforms
- Software ecosystems
- Business models



# Thank you! Questions?

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