The Software Industry

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FLOSS C01


Mac GIMP
Mac GIMP


Online Dashboard
Recent AdWord Events Statistics
Synopsis
Event Type
Clicks
Leads
Opportunities
Webinar 6.11.08
Webinar
12
7
1
Lead Scoring
Google AdWord
2
1
0
email newsletter
MS AdCenter
20
10
2
Lead Management
Google AdWord
3
2
1
Leads By AdWords Report
Cost per Leads By AdWords Report
Lead Management
Webinar 6.11.08
email newsletter
Lead Scoring
62.50%
6.25%
18.75%
12.50%


facebook
Facebook helps you connect and share with the people in your life.


WORLD WARCRAFT

The Software Industry

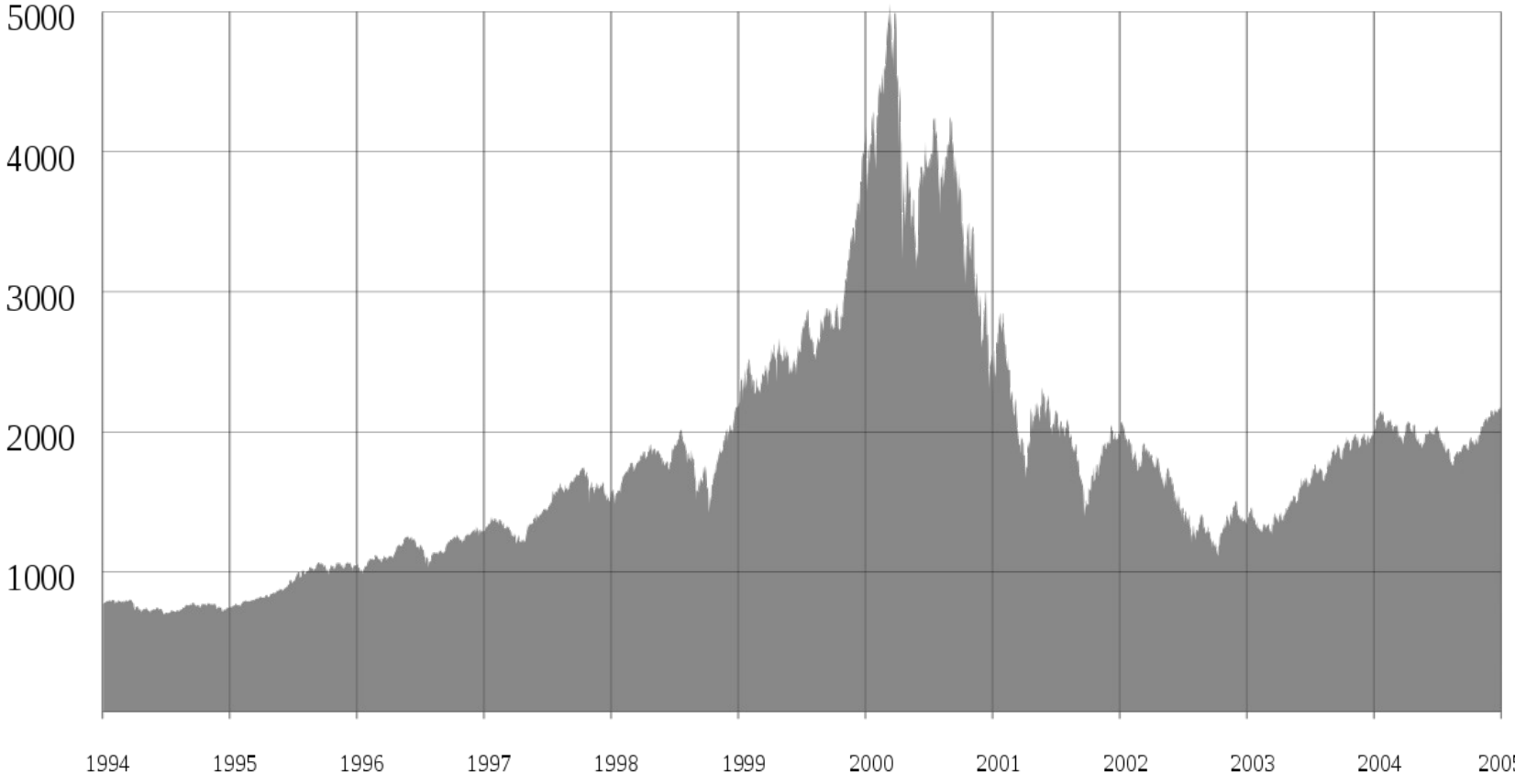
- The software industry
  - Is the set of business that provide
    - Software products and
    - Software services such as
      - Operating services
      - Consulting services
        - Development services
        - Implementation services
  - to other industries as well as itself
- The software 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	$177 700 (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)




Software
is eating
the world
WSJ, 2011-08-20

Venture Capital and Open Source (Recap)

Increasing Open Source **Investment Pace**

	<5 YEARS	5-10 YRS	>10 YEARS	AGGREGATE
OSS COMPANIES FOUNDED (1ST INST. INV.)	31	19	8	58
VC INVESTMENT BY FOUNDING VINTAGE ($M)	$1,802	$2,847	$255	$4,904
VC INVESTMENT BY YEAR BUCKET ($M)	$4,237	$506	$161	$4,904
VALUATION BY FOUNDING VINTAGE ($M)	$8,174	$12,719	$16,992	$37,886
EXCL. RED HAT			$1,938	$22,832

“It is actually open source software that’s eating the world.” [V15]

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**

Software is a Digital Good

- **Digital good**
  - A digital artifact satisfying a human need
  - Without further intervention
    - No or low reproduction costs
    - Perfect reproduction possible
- **Software** as a digital good
  - Typically high cost to first copy
  - Typically high switching costs
- Examples
  - Consumer software (Games, social media, etc.)
  - Enterprise software (SAP Business Suite, Oracle RDBMS, etc.)

Software as a Product

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

Core, Basic, and Whole Product

- **Core product** =
  - Core software
- **Basic product** = bundle of
  - Software + complementary materials + self-help services
  - Guarantees about fitness for use + indemnification
  - Support services
- **Whole product** = basic product +
  - Training
  - Consulting
  - Operations
- For more, see our **Product Management** course

Whole product

Basic product

Usage rights

Software (core product)
- Core software
- Additional software (extensions + plug-ins, tools and utiltiies, integrations)

Complementary materials
- Documentation
- Training materials

Self-help services
- Forums, mailing lists
- Help and chat agents
- On-line tutorials

Pricing of usage rights
- Quantity: User, machine, time, …
- Duration: Perpetual, time-limited, …
- Structured: Initial license fee, regular maintenance fee

Guarantees (“insurance”)
- Fitness for use, certification
- Indemnification

Pricing of guarantees
- By damage: Loss of business, fines received
- Structured: Levels / bands, formula

Support services
- Hot-line support
- On-site servicing

Pricing of support services (SLAs)
- By availability: Incident-based, 9x5, 24x7
- By quality: First-level, second-level, third-level

Training
- In-house training
- Off-site training

Pricing of training
- Fixed fee
- Per participating person

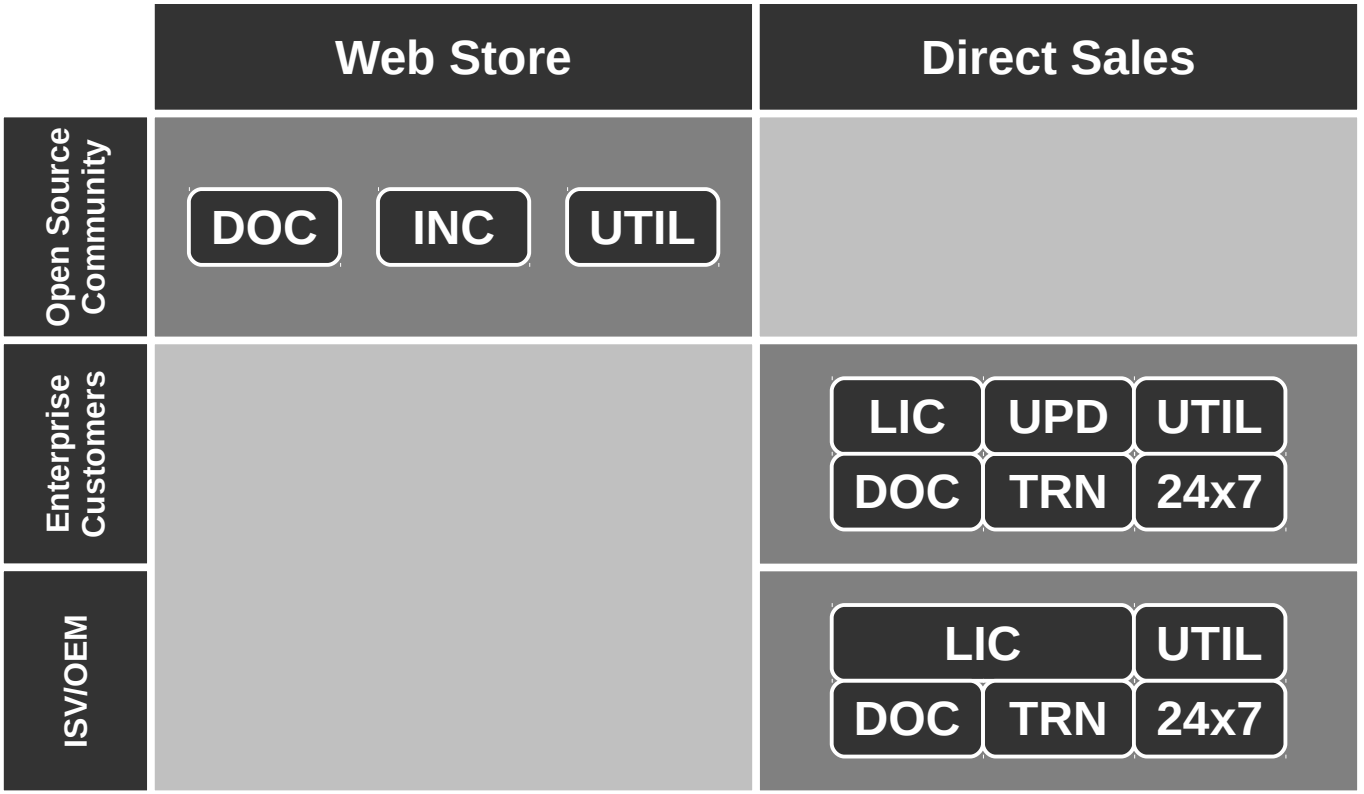
Consulting
- Technical implementation services
- Strategic solution consulting

Pricing of consulting
- Fixed fee
- Time and materials

Operations
- Provision of SaaS (managed service)

Pricing of operations
- Quantity: Users, resources, …
- Duration: Always time-limited
- Structured: Set-up, subscription

Commercial Open Source Products [WR13]



DOC Documentation

INC Incident-based support

UTIL Utilities

LIC Commercial license

UPD Update service

TRN Training

...

24x7 24x7 hot-line

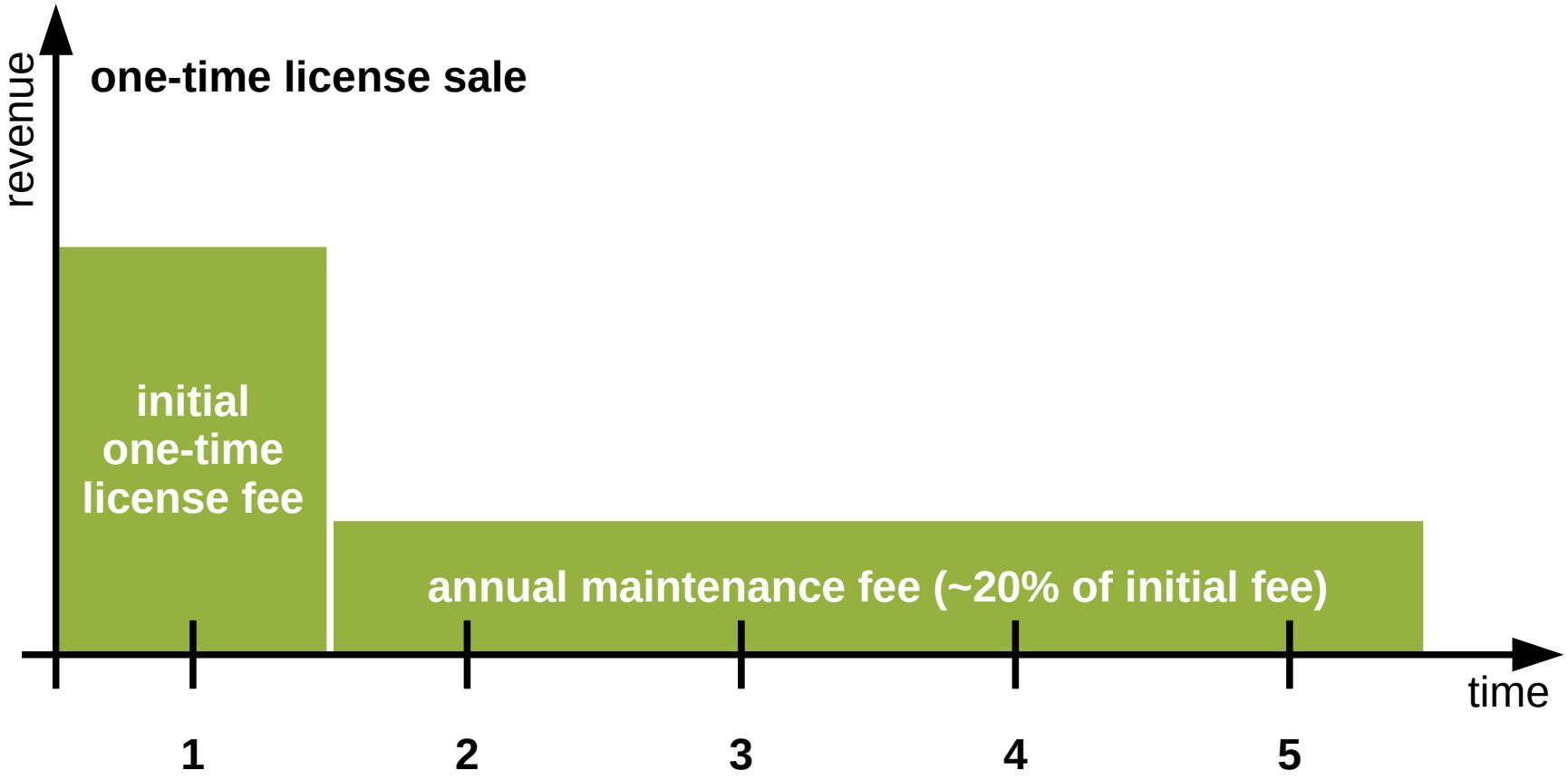
Enterprise Customers vs. Private Users

- Enterprise customers
  - Are willing to trade money for time
- Private users
  - Are willing to trade time for money

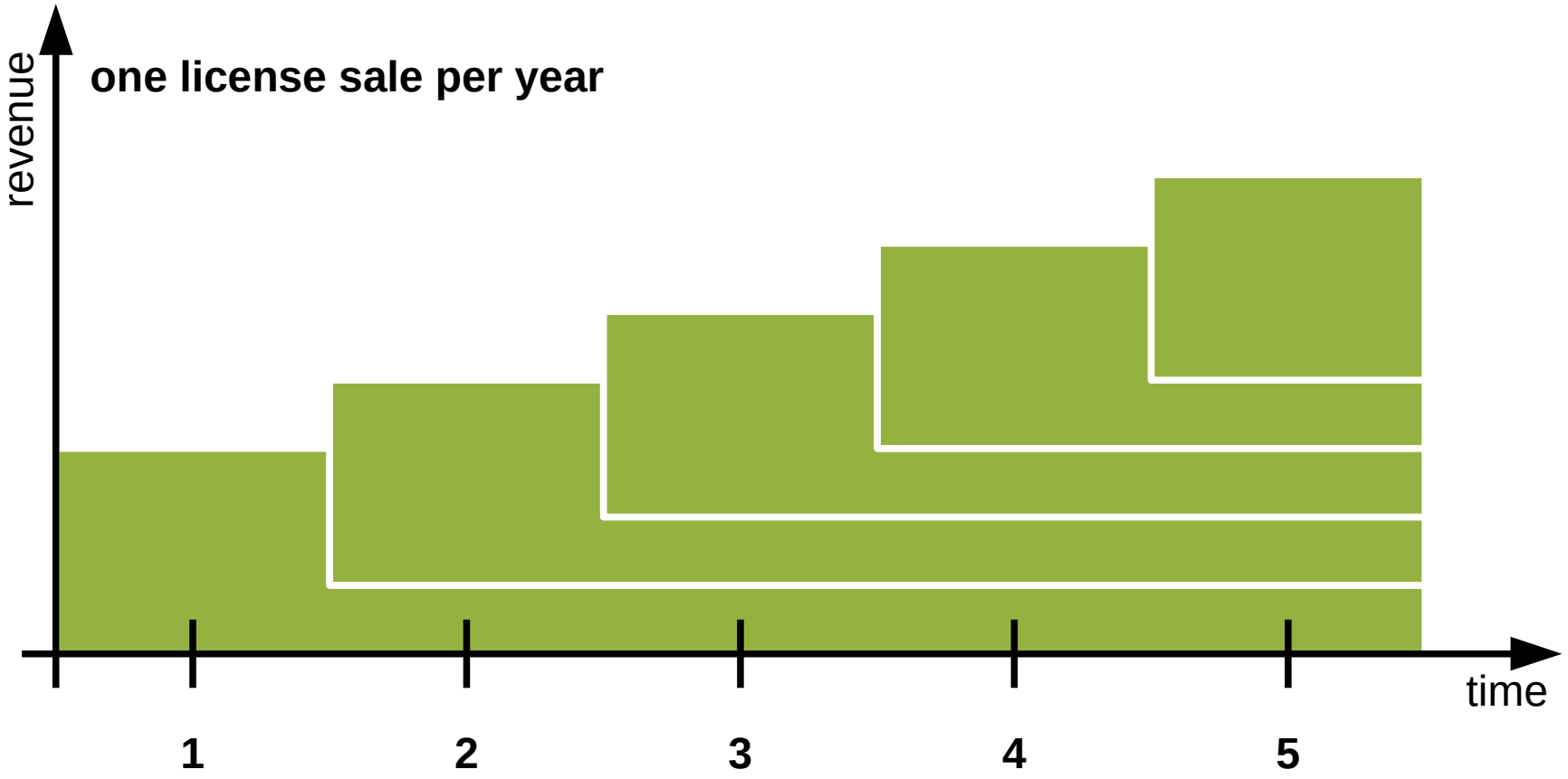
Products, Projects, and Services

- Products are provided by a software vendor
  - “Standardsoftware”, (commercial) off-the-shelf software (COTS)
- Products can be operated by service providers
  - Service providers specialize in specific products
- Projects are performed by consulting firms
  - “Individualsoftware”, custom software
- Many companies do all of the above

Single Product Sale Revenue



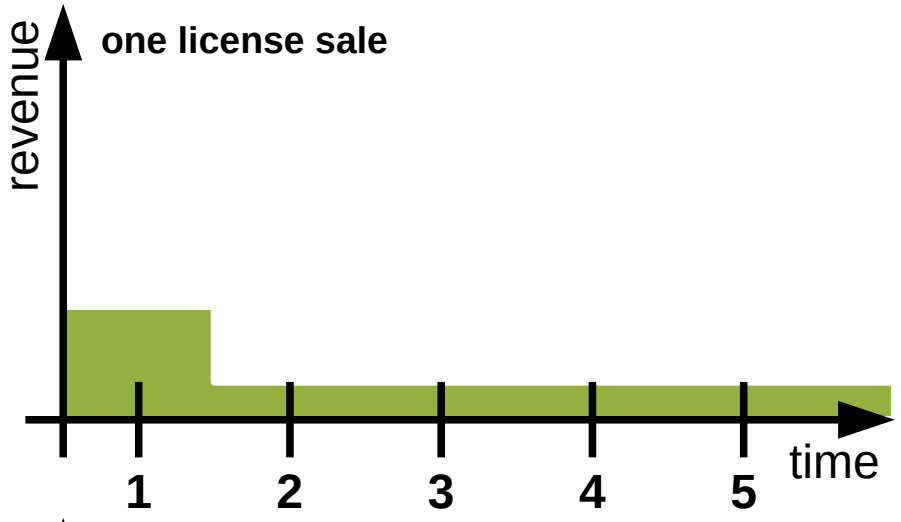
Accumulating Product Revenues (SaaS) [1]

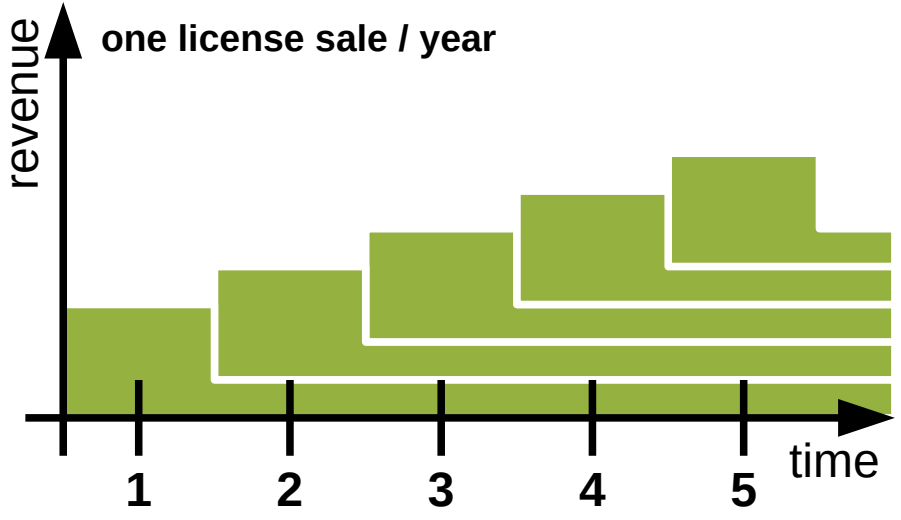


Software Projects

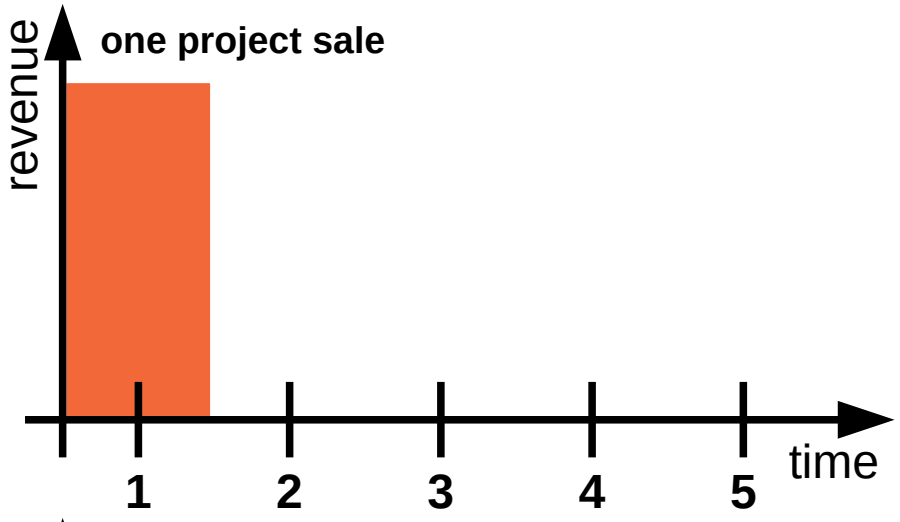
- Projects
  - A process with a defined start and a defined end
- Software projects
  - Revenues correlate with performed labor
    - Fixed price vs. actual labor
  - Accounted for as revenue and expenses
- Examples
  - Bachelor and Master theses
  - Customizing SAP for a customer

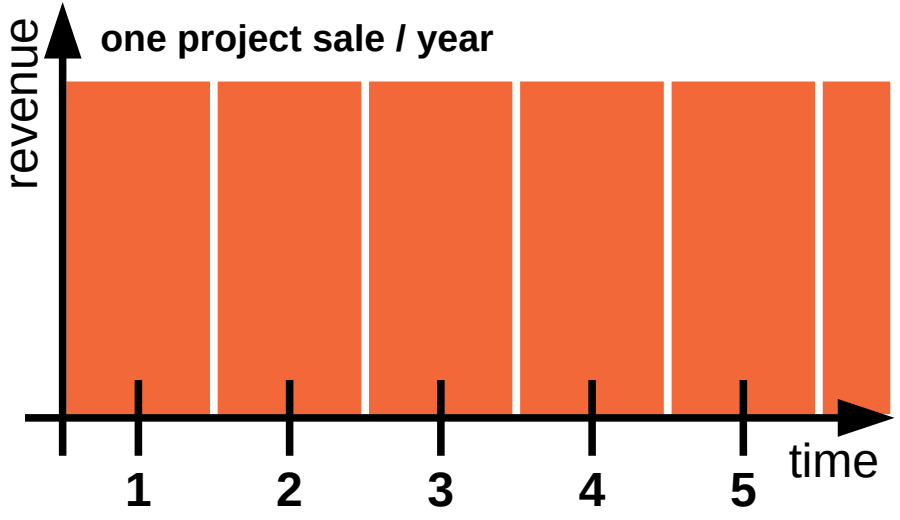
Product Revenue





Project Revenue





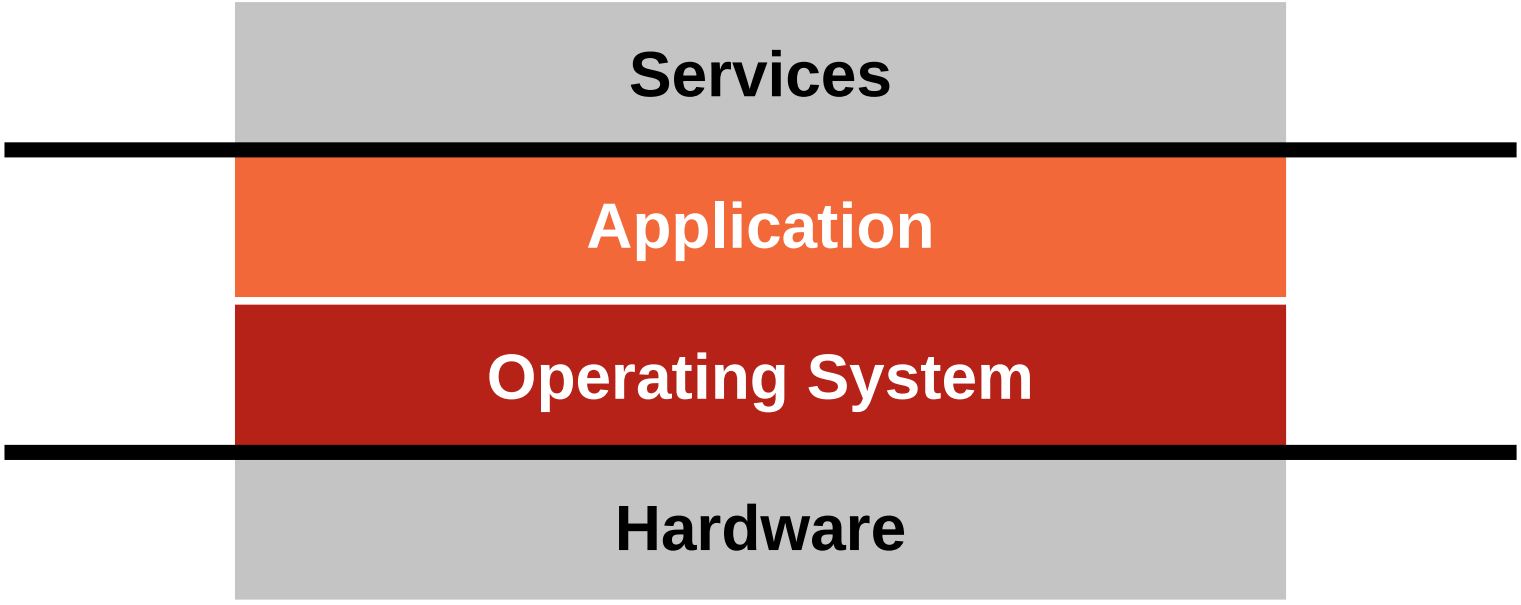
(Software) Products and (Implementation) Projects

Software Vendor	Product	Consulting Firm	Project
SAP	SAP Business One	accenture High performance. Delivered.	Widget Corp. BI Impl. 2008
SUGARCRM COMMERCIAL OPEN SOURCE	SUGARCRM COMMERCIAL OPEN SOURCE	it-novum Open-minded Business Solutions	German SME Sugar 2010
methodpark	stages	methodpark	Continental Stages 2010
Microsoft	Microsoft Office		

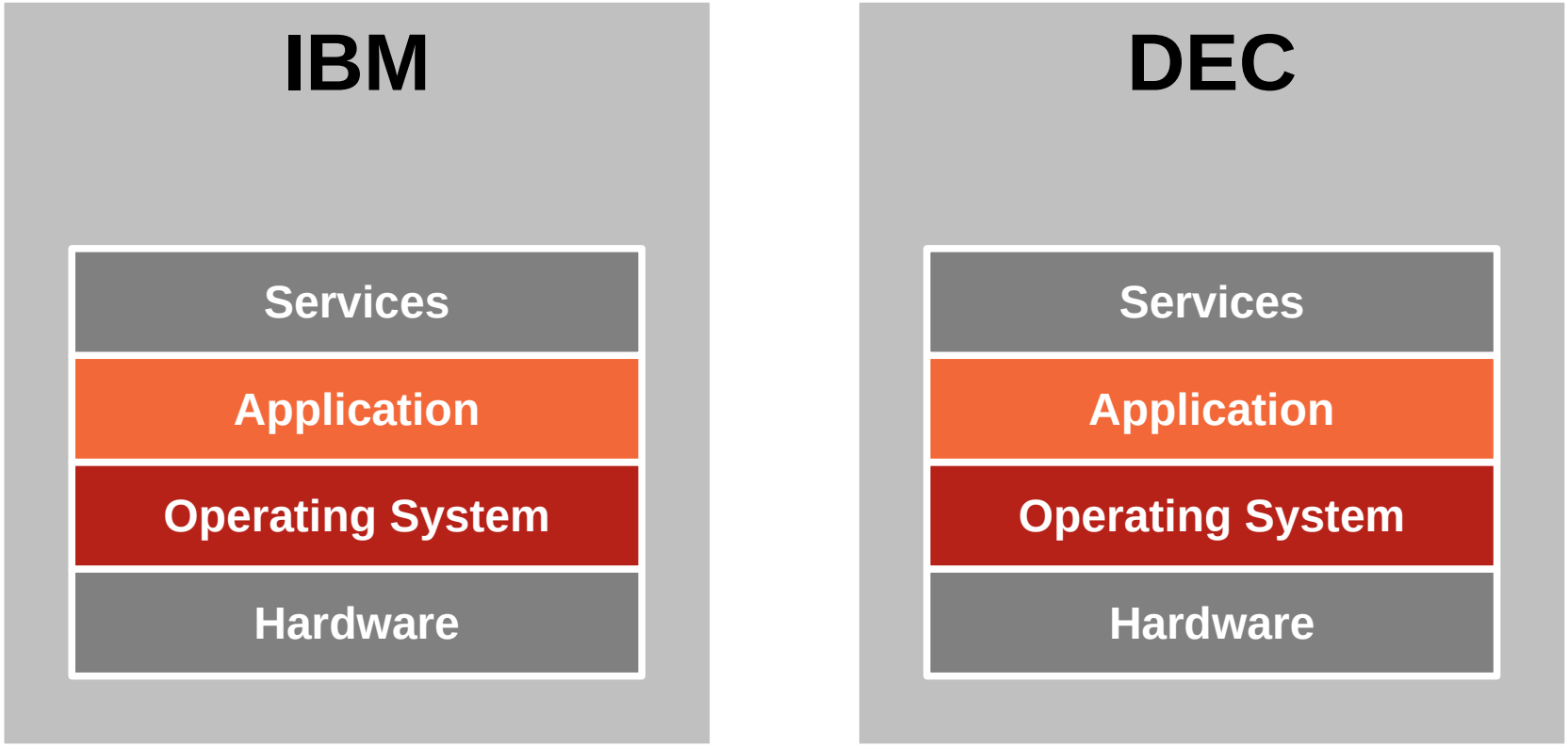
Software Product vs. Project Companies

	Consulting Firms (Custom Development)	Software Vendors (COTS Development)
Advantages	• Not capital intensive • Can be started easily	• Stable maintenance revenue • High market capitalization
Disadvantages	• Somewhat fragile revenue • Little long-term stability • High business volatility • Limited scalability	• Hard to get started • Requires upfront investment • May be slow to react • Most fail, few survive

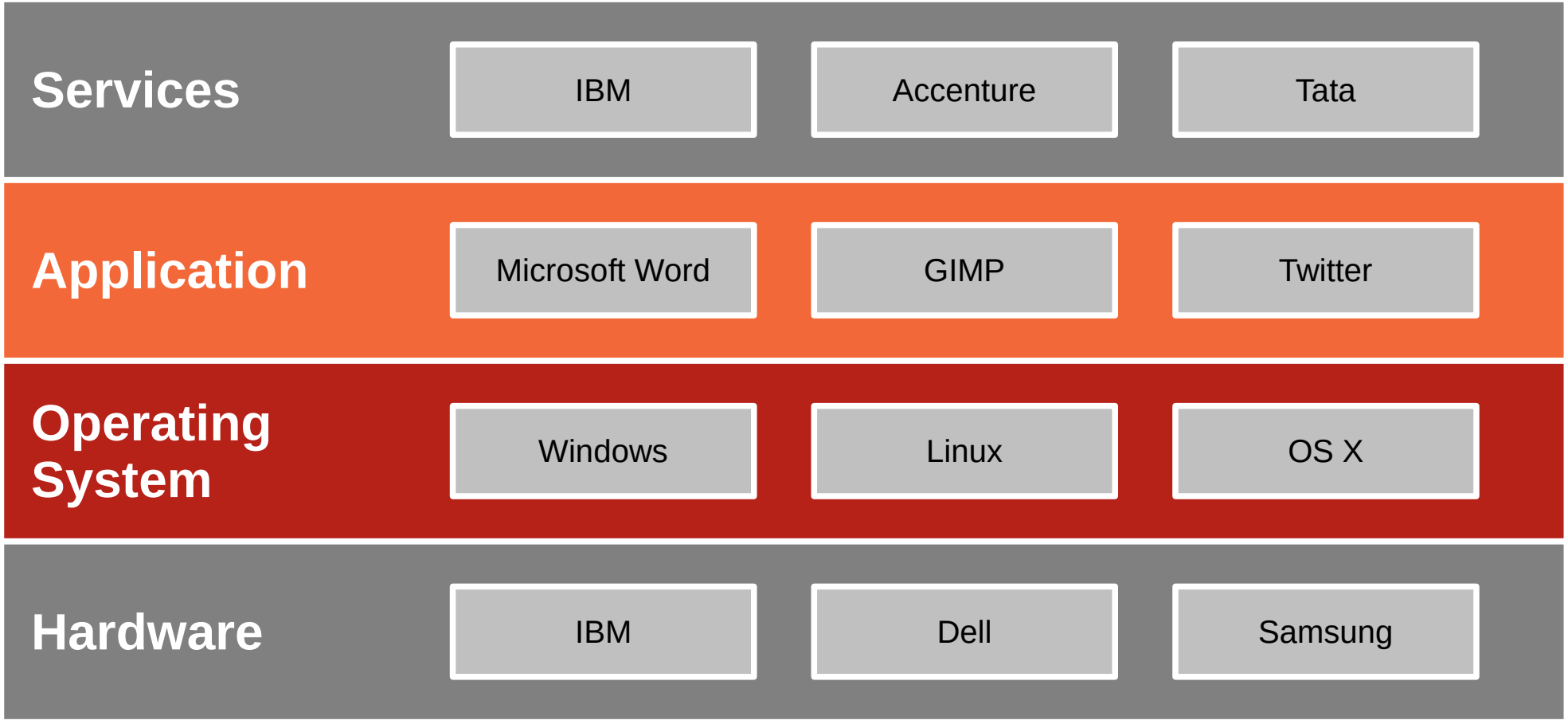
Customers Buy a “Solution”



Vertical Integration (Until 1980ties)



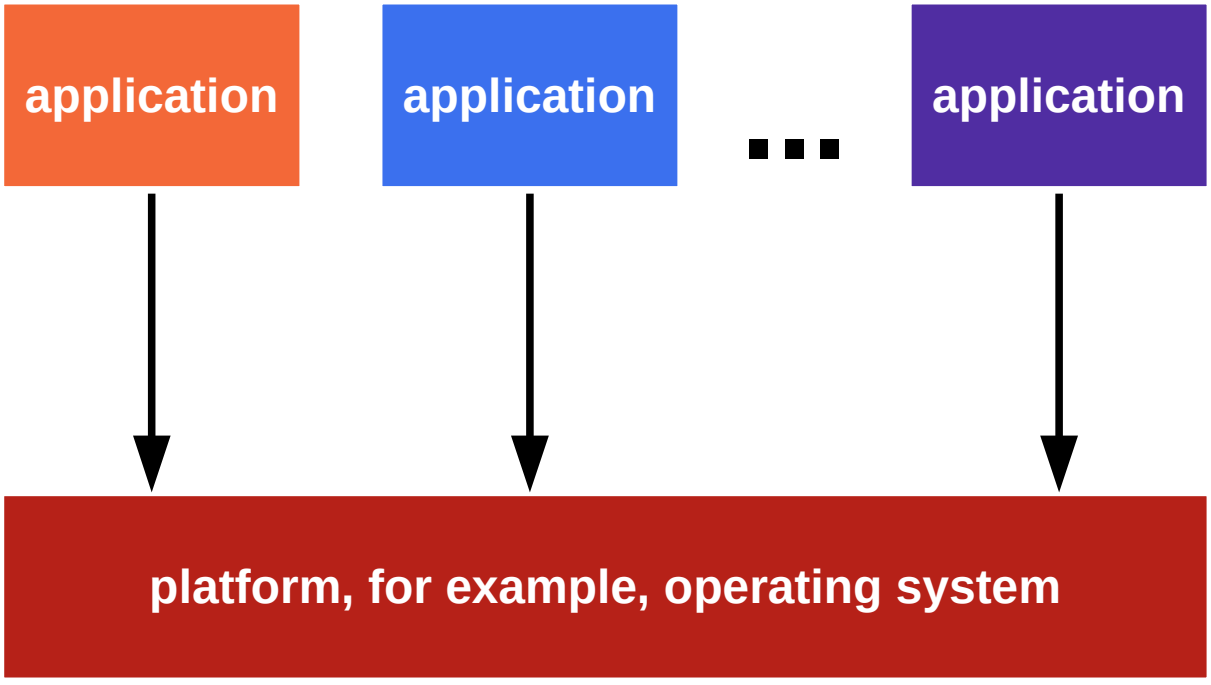
Horizontal Integration (Since 1990ties)



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 1 / 2



Software Platform 2 / 2

- 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

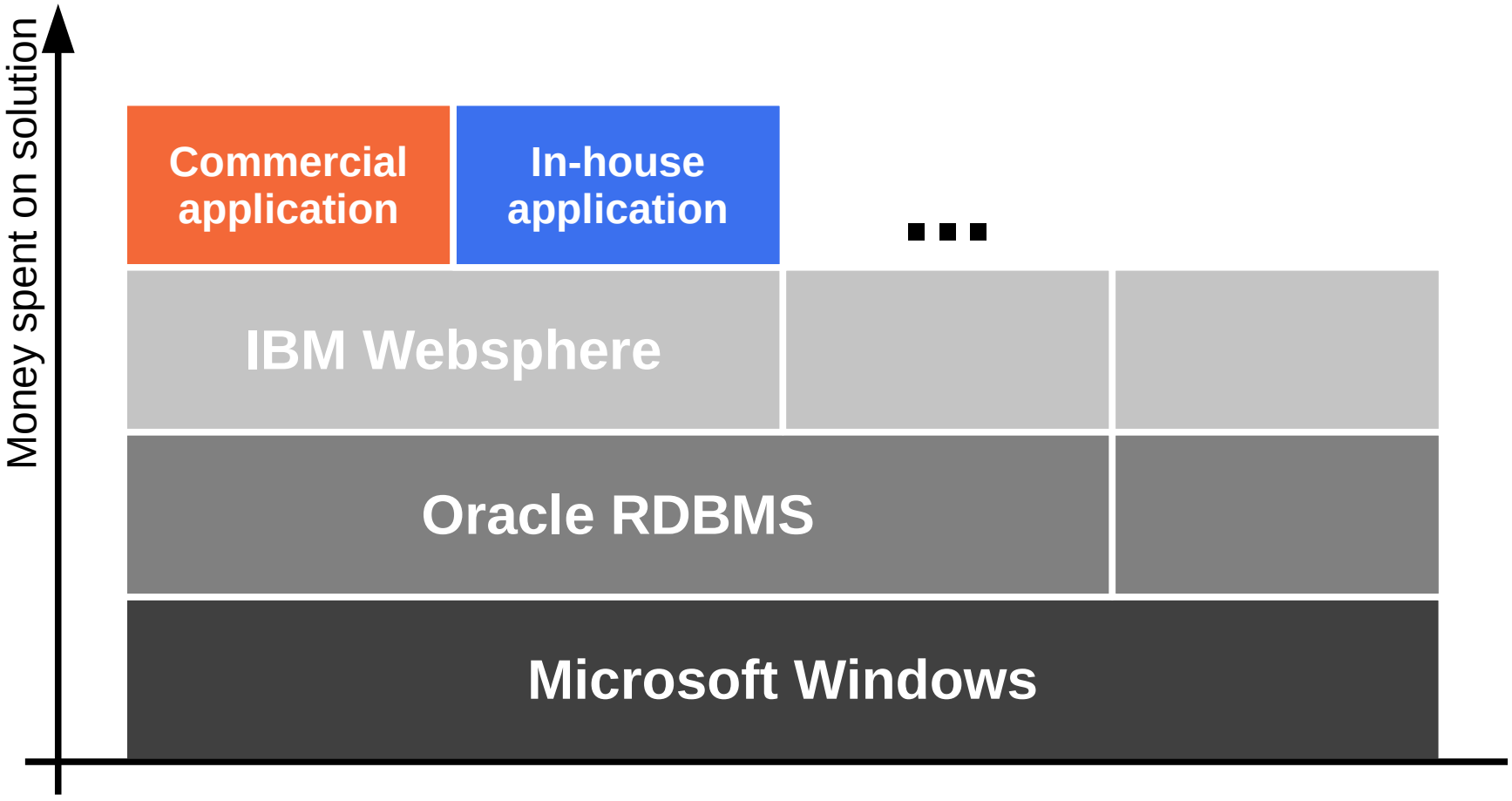
- Platforms are valuable
  - Platforms are needed by the applications running on top of it
  - Platforms can simplify IT department operations costs
- An application license sale implies a platform sale

Software Ecosystem

- Software ecosystem
  - The totality of actors (businesses and individuals),
  - software applications and components,
  - their relationships and goals
  - around a software platform
- Includes but is not limited to a community

Pricing Power 1 / 2

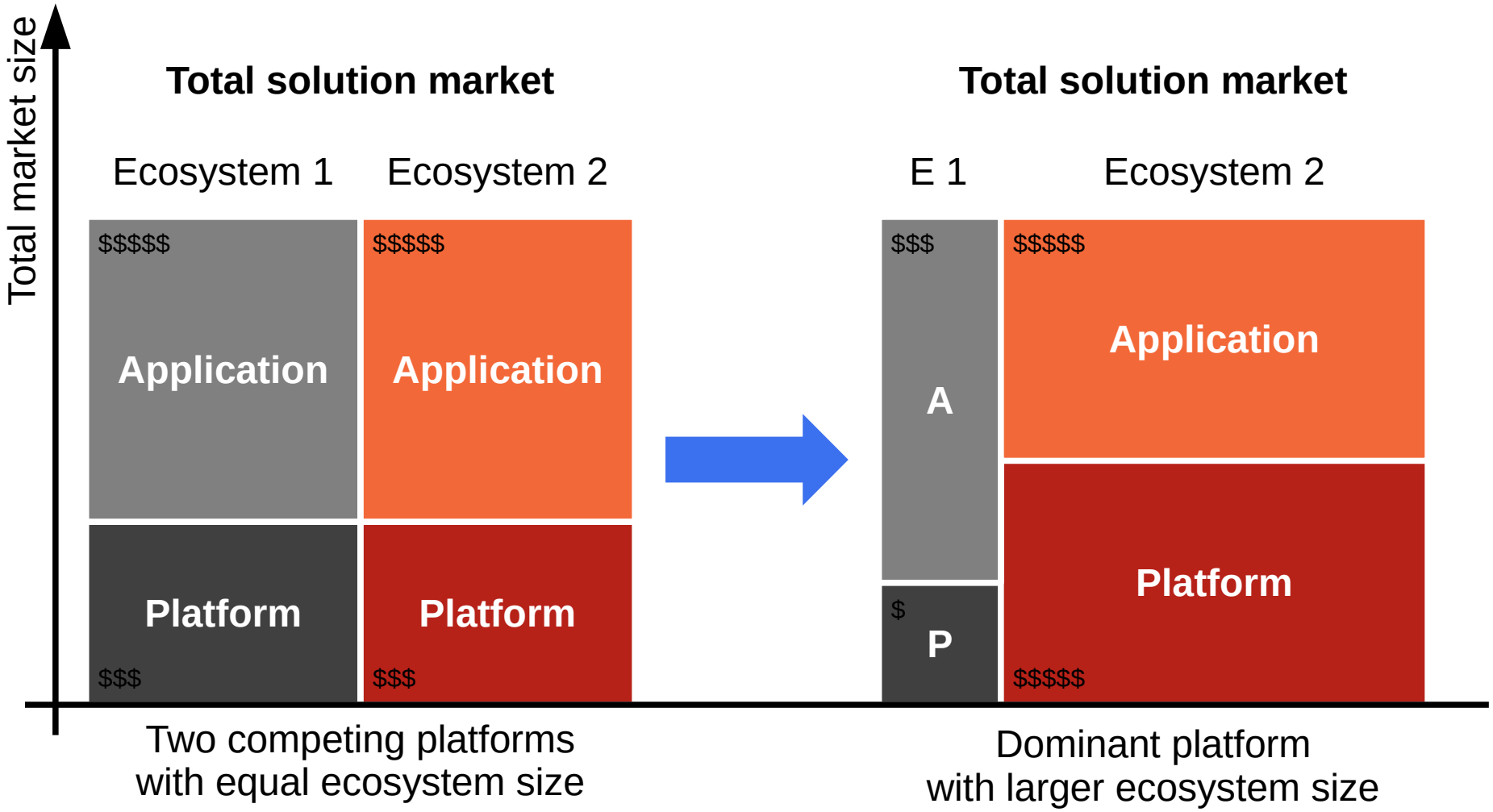
Pricing Power 2 / 2



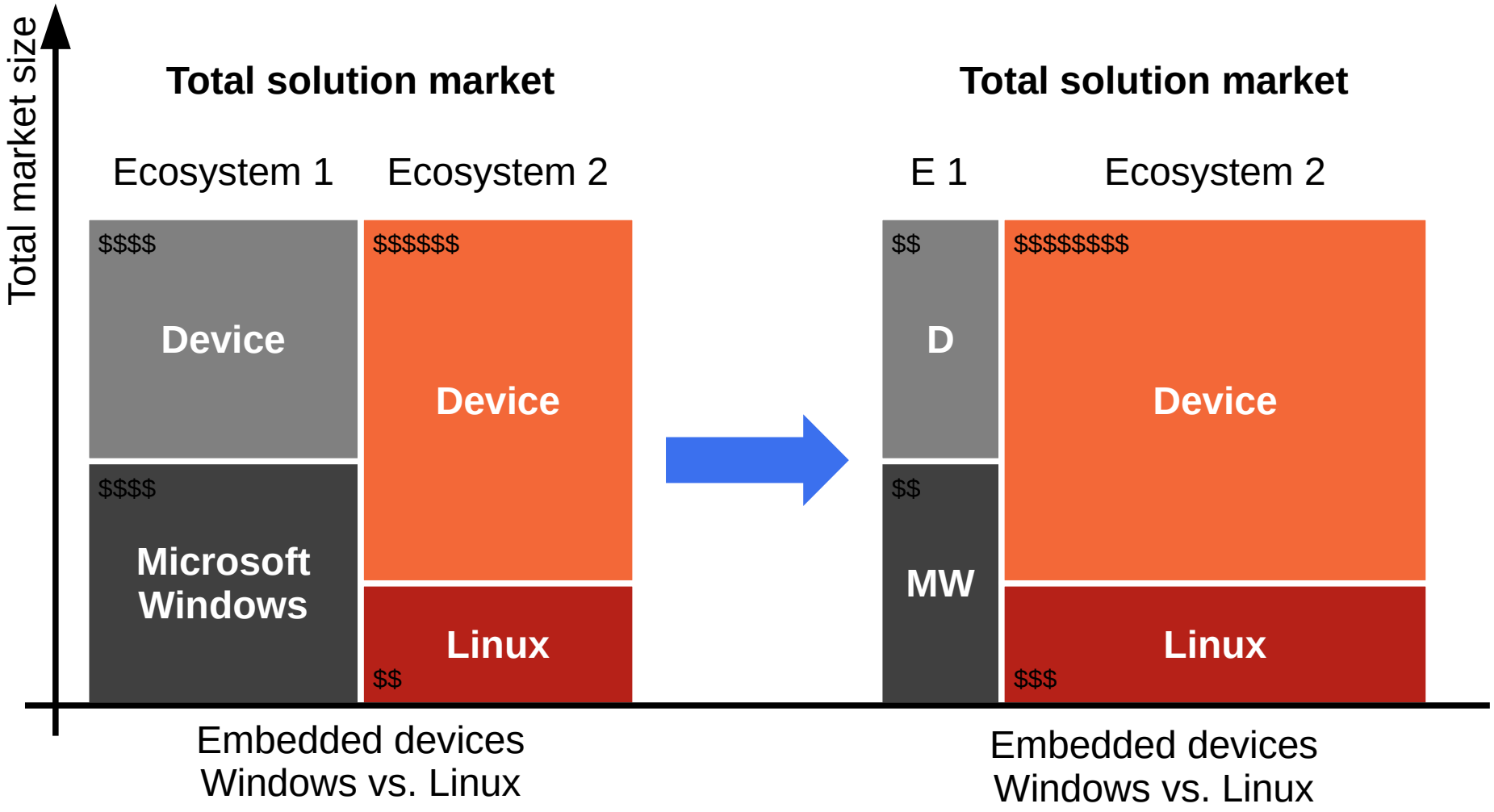
Software Ecosystem

- **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

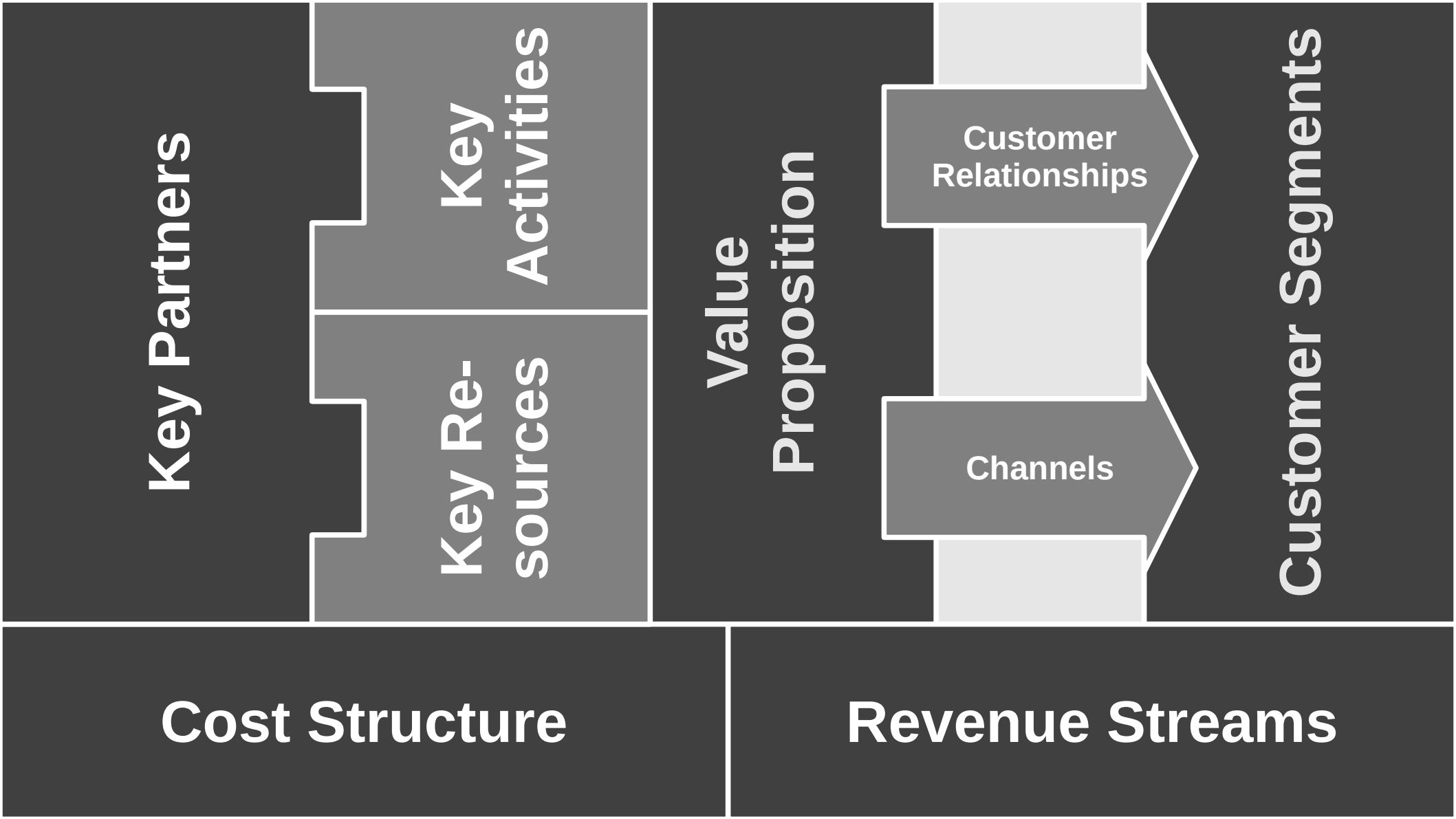


Open Source in the Ecosystem Wars



Business Model

- 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
- But "open source is not a business model" [A08]
  - But open source can be a key enabler of a business model
  - So much so that the business model is called "open source"


Key Partners
Key Activities
Key Re-sources
Value Proposition
Customer Relationships
Channels
Customer Segments
Cost Structure
Revenue Streams

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

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

Open Source “Business Models”

- Non-profit open source
  - **Community projects** without foundation
  - Open source **developer foundations**
  - Open source **user foundations**
- For-profit open source
  - **Service and support firms**
  - Open source **distributor firms**
  - **Single-vendor** open source **firms**

Open Source and Business Models

- Open source may not be a business model, but it may be …
  - A go-to-market strategy
  - An innovation model
  - A collaboration model
  - A sourcing strategy
  - And many other things
- More on this in later lectures on open source business models

Review / Summary of Session

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

Thank you! Questions?

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- Contributions
  - None yet