



Software Innovation and R&D Management

Product Thinking I

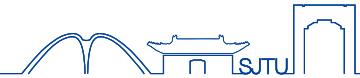
2019-03-06



上海交通大学
SHANGHAI JIAO TONG UNIVERSITY



Beyond Coding

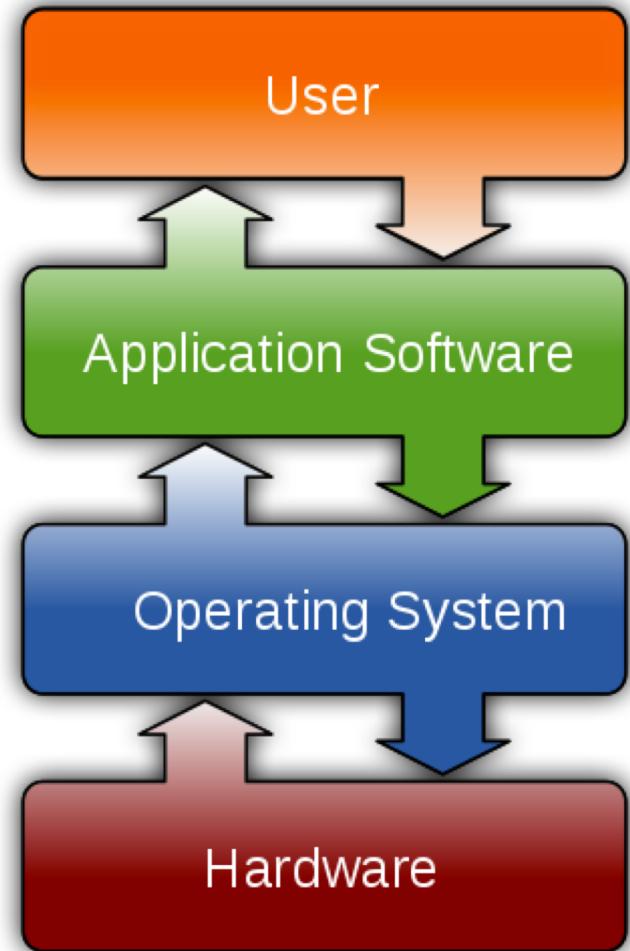


- “Beyond Coding”
 - Code is not the killing factor
 - Neither the technologies



Background

- Customer(User) VS. Developer
 - Specific > General, Few domains > Every where
 - CS & SE
 - ***Idea belongs to customer***





Background

- In the era of Internet
 - Web 1.0
 - User consuming content
 - Web 2.0, 2004
 - User generating content
 - Interoperability
 - Web 3.0
 - ***Internet knowing well customer***
 - Internet providing service & customer consuming service



Problem

- How to know well your customers
 - Who are your customers?
 - What are their needs?
 - **Pain Point**

Pain Point



Service
Provider



Customer



Service





Best Practice



1. Great idea
2. Hypothesis: some people experience a certain problem when doing something
3. If they are not found than go to 2
4. Interview them
5. If the hypothesis is not validated then go to 2
6. If there are existing customers than go to 9
7. Get the customers
8. Continuous learning
9. Build the product



Start

- Customers have _____ problem
- If customers did not buy/use our product, they would buy/use _____
- Once customers are using our product, they will gain _____
- This problem affects our customers _____
- Customers are already using tools like _____
- Customer purchasing decisions are influenced by _____
- Customers have [job title] or [social identity]
- This product will be useful to our customers because _____



Start

- Stakeholders involved in using/buying this product are

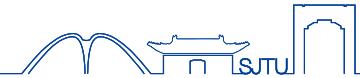
- Customers are willing to invest _____ to solve this problem
- Partners involved in building/distributing this product are

- Resources required in building/servicing this product are

- Customers' comfort level with technology is _____
- Customers' comfort level with change is _____
- It will take _____ to build/produce this product
- It will take _____ to get X customers or X% usage



Start



- Hypothesis
 - The start point
 - The most import thing is you've got the hypothesis rather than whether the hypothesis is right or not.
 - *Why?*

Start



- How to
 - I believe [type of people] experience [type of problem]
 - when doing [type of task]
 - because of [limit or constraint]
 - ***Who, What, How much, When, Why***



Try & Fail





Try & Fail



A screenshot of a web browser window displaying the Yahoo homepage. The page features the classic yellow search bar with the word "YAHOO!" in red. Below the search bar, there are several links and sections related to news, finance, and technology. The overall design is characteristic of early 2000s web interfaces.

A screenshot of a web browser window displaying the Google homepage. The page features the iconic "I'm Feeling Lucky" button and a search bar. Below the search bar, there are several links and sections related to search results and Google services. The overall design is clean and minimalist.

A screenshot of a web browser window displaying the Thefacebook homepage. The page features a large "Welcome to Thefacebook!" message and a registration/login form. Below the form, there is a section titled "Thefacebook is an online directory that connects people through social networks at colleges." It also includes a "To get started, click below to register. If you have already registered, you can log in." link and "Register" and "Login" buttons.

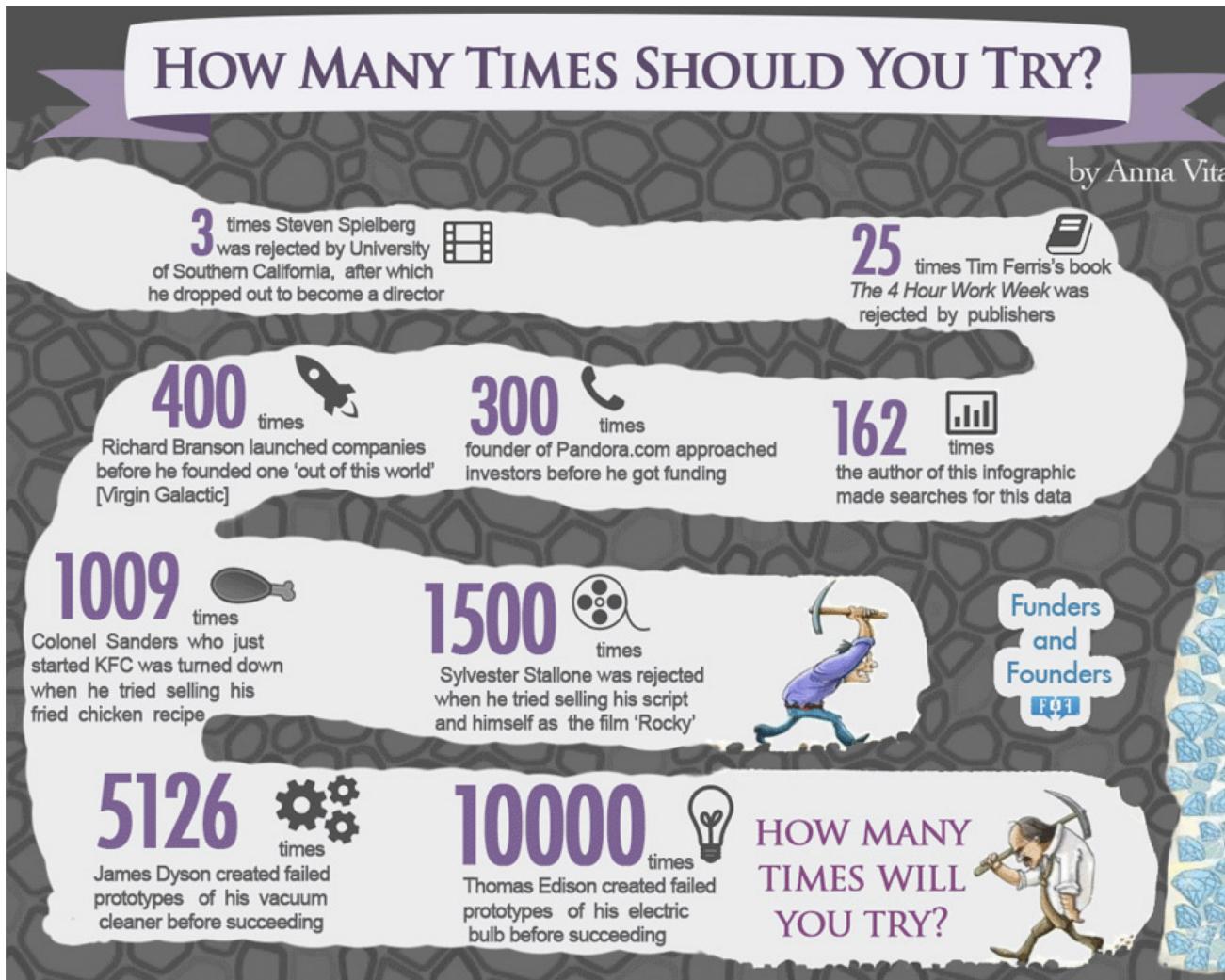
A screenshot of a web browser window displaying the Twitter homepage. The page features the iconic "twit" logo and a search bar. Below the search bar, there are several links and sections related to Twitter's features and community. The overall design is clean and minimalist.

A screenshot of a web browser window displaying the Amazon Books homepage. The page features a large "Welcome to Amazon.com Books!" message and a "One million titles consistently low prices." tagline. Below the tagline, there is a "SPOTLIGHT! – AUGUST 16TH" section and a "ONE MILLION TITLES" section. The overall design is clean and professional.

A screenshot of a web browser window displaying the YouTube homepage. The page features the iconic "YouTube" logo and a search bar. Below the search bar, there are several links and sections related to YouTube's features and community. The overall design is clean and minimalist.

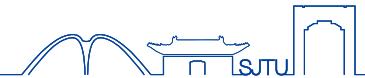


Try & Fail





Try & Fail



- 3000 ideas
- 1000 projects
- 2 launches
- 1 win



Software Innovation and R&D Management

Technical Debt

2019-03-06



上海交通大学

SHANGHAI JIAO TONG UNIVERSITY



Problem I

- How to deal with complexity?
 - Increasing code
 - Increasing team

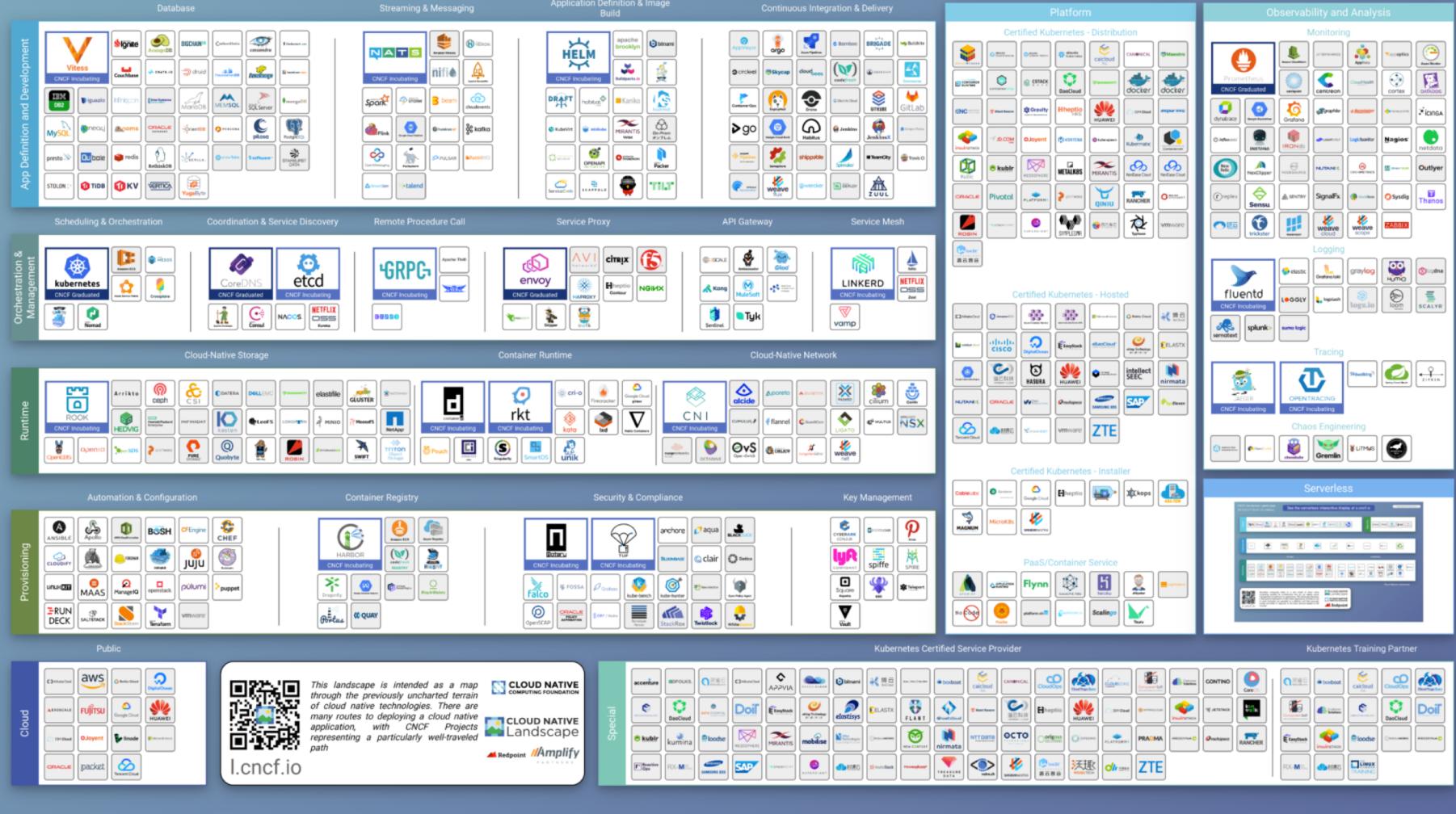




Problem II

CNCF Cloud Native Landscape

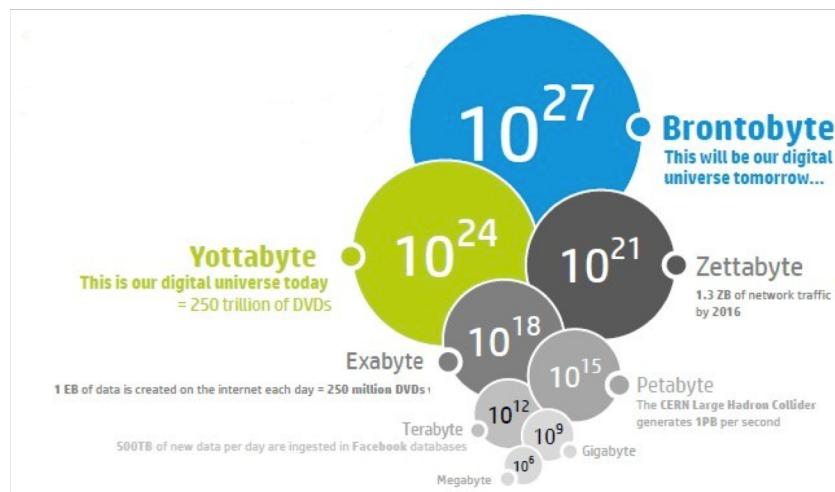
2019-02-07T18:34:14Z ce850a6





Problem III

- How to guarantee QoS?
 - The large scale of users
 - The huge data





Key Words

- Architecture
- Security
- Data
- Infrastructure
- Methodology



Architecture



- Monolithic
- N-Tier
- SOA
- AO
- Microservice
 - Service Mesh



Security



- Privacy
- Authorization
- Authentication



Data



- Large scale data processing
 - Database
 - Storage
 - Query



Infrastructure



- Hardware
 - Network
 - Storage
 - xPU
 - GPU、TPU、FPGA
- OS
- Virtualization
- Resource Management
- Middleware