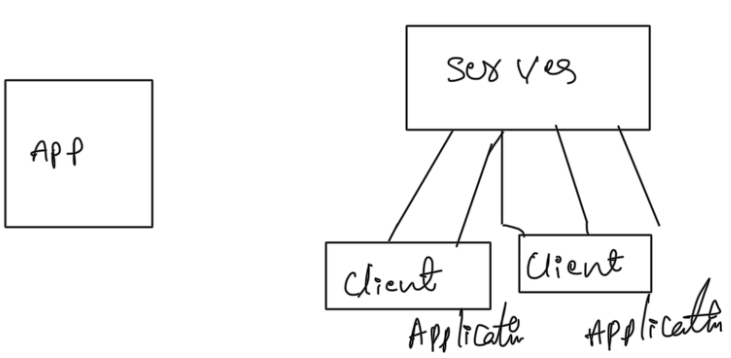
Evolution of software Industries II

Day 5
15/07/2025

In Early stage of Internet



The more software Content is on the Server side compared to client Side Application's Software.

Dot .com Bubble

In Early stage of Internet Every Business started to using Client Server Architecture, But the Internet is not ready for it
Each and Every Business started Building Websites to Expand their Services & Business.

Suddenly due to lack of Infrastructure maintainance & funding issues all the commercial Companies went Bankrupt in initial Days of Internet

.Com ⟶ stands for Commercial

layoff are increased due to Commercial Company Bankrupts.

Y2K (year 2000)

In the years of 90's

1950 → 1950
→ 1970

The years are stored in 2 digits in the Computers.

1970 => 70

1 - 1 - 1970 => 1 - 1 - 70

Early Software

1960 as 60

1972 as 72

12 - 31 - 1999 99

1 - 1 - 2000 00

1900 / 2000 ? confusion

In the year 1996 - 97

The old Softwares are rewritted and updated By So many programmers around the world.

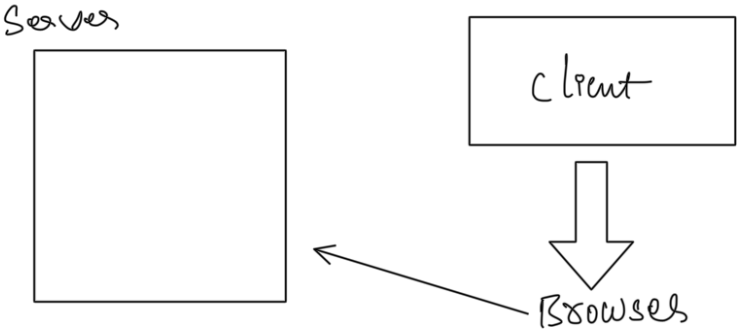
300 → 500 $ Billion Dollars are Spent In the America & Europe

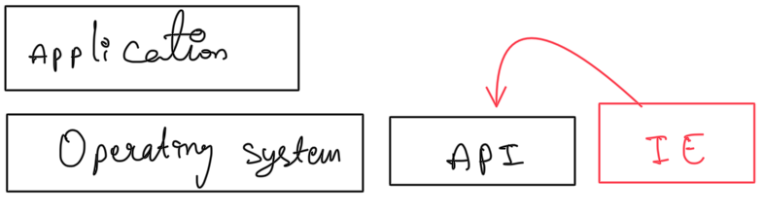
When problem is fixed there is No more Job left for specifically skilled programmers

So programmers returned Back to their Homes

Browsers Introduced

Net scape / Internet Explorer





Internet Explorers are Introduced as pre installed application's of

Hardware

Operating Systems like windows.

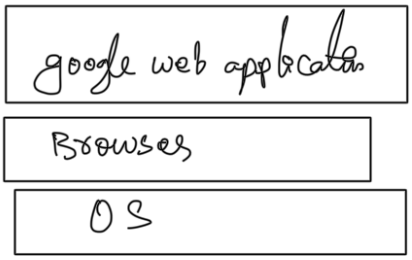
This created unfair competation The other Browsers Companies disagreed with pre installation of Internet Explorer Browser which cannot be uninstalled and the users started using it more But other Browsers Companies Browsers lost the Huge Number of users

Billions of Dollors fine paid by the Microsoft Windows for creating unfair competation on Browsers Industry

Net Scape Browser went Bankrupt and the Netscape declared the source code of Net Scape as open source So the Mozilla Company used the source code and created Mozilla fire fox.

New products are arrived from Browsers

Search Engine



Microsoft Company Search Engine Have limited Memory for Web Browsers So this made Google Web application's have to depend on the Browsers of Microsoft SO Google created its Open Sourced its own Web Browsers "Chrome"

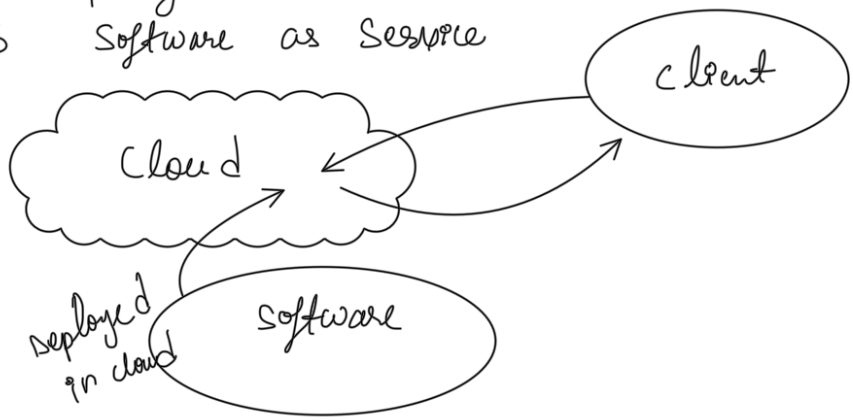
The Chrome Become most famous browser

Browsers supports enterprises language [illegible]
Web applications Operating System Independent.

This Become Huge Success and two models above introduced

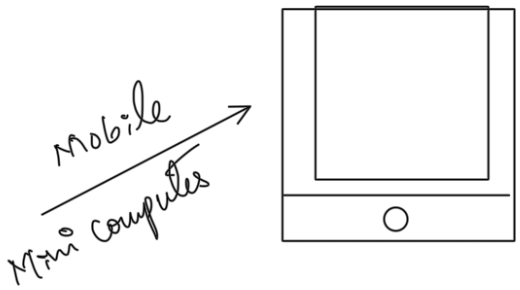
Paas platform as service
SaaS Software as Service

cloud revolution



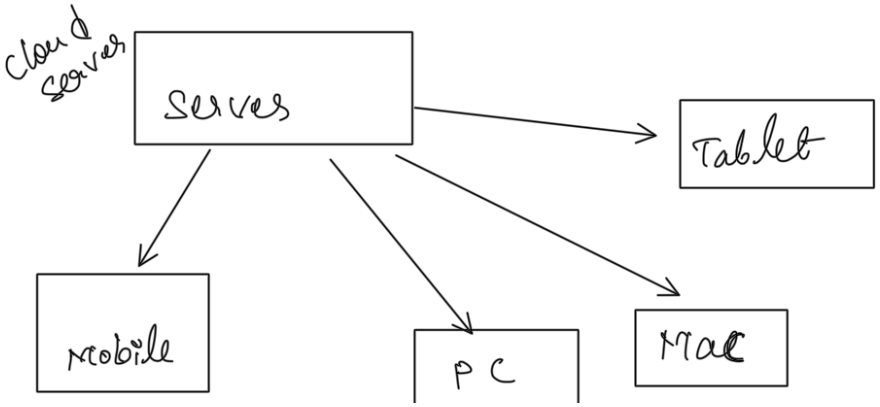
This cloud architecture created more Jobs in the Software Industries (Testers, System operations, Devops Engineers)

In 2004 Mobile revolution created



This Mini computes made computes accesible to Everyone in less price Compared to Personal Computers

From young generation to old people Everyone started using the mobile (mini computes)



B2C revolution started. we are living in this Era

AI Revolution on going current trend

LLM , GPT , AI

Large Language models Artificial Intelligence OpenAI'S

Made AI affordable, libraries, tools infrastructure of AI Become Cheaper.

All softwares are adopting AI
softwares are Becoming AI installed making tasks More Easy.

Roles In software Industry

→ Developer Role 60% to 70 %

→ Testers / Quality Assurance QA → manuall / Automation → Role 10 - 20 %

→ Product Managers → Role 10 - 20 %

→ Software Bugs are fixed

Example

① Amazon shopping Cart Bug

② NASA

floating point variable is integer
data passing between two Modules
300 M $ rocket got Blasted
on the A991.

Expensive Bugs

Cloud created → New role → DevOps

"Developer Operations" Role

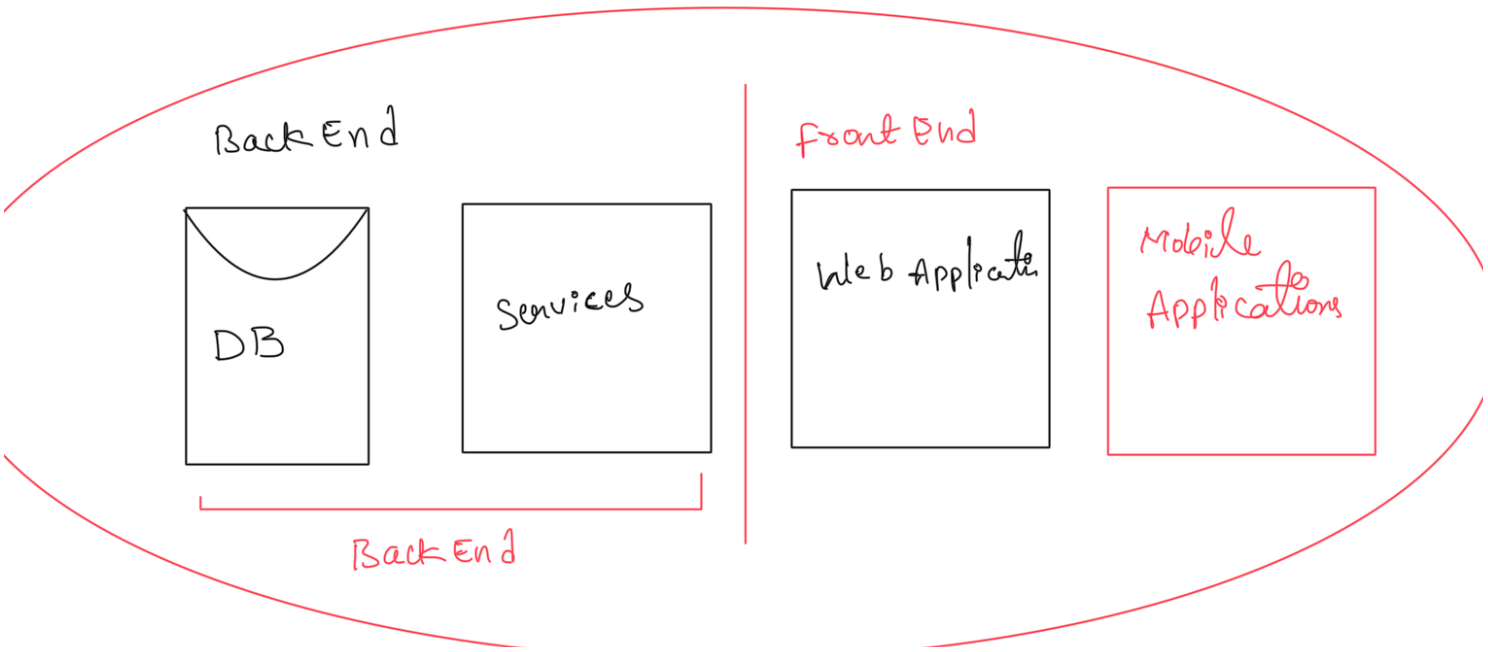
Deploying software using another software

→ SRE (Site Reliability Engineering)
Redundency
Replication
Monitoring
Alert

→ Security providing security to software
Cyber Security

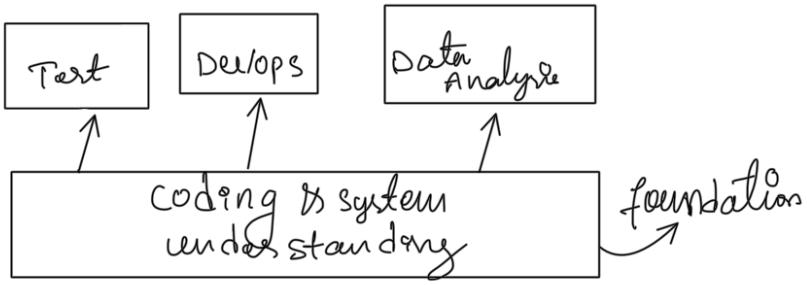
→ UI / UX B2C created special preference for design
Revolution
→ Blend of Art and Engineering

→ Data Analytics
→ Data Scientists
→ AI / ML Engineers



Full stack Engineering

This software Revolution Journey Continous



Evolution of Software Industry and Roles – Part 2

In Part 1, we explored the history of the software industry, from the 1950s invention of software to the emergence of system and application software, the rise of IT services and product-based companies.

In this part, we continue the journey by discussing key events, technological revolutions, new roles in the industry, and how software has evolved into the cloud and AI era.

Dot-Com Bubble and Y2K

Dot-Com Bubble (Late 1990s–2000)

- Early 2000s saw a boom in internet-based startups ("dot-coms").
- Websites were launched for nearly every idea (e.g., flowers.com, cars.com).
- Infrastructure (like online banking or logistics) wasn't ready to support this boom.
- Many startups failed within a year, leading to the "dot-com crash."
- Result: mass layoffs and investor losses.

Y2K Bug

- From 1950s–1980s, computers stored year with only **two digits** (e.g., 70 instead of 1970).
- Concern: what would happen when year turned from 99 to 00 in 2000?
- Systems might read 00 as 1900, causing calculation errors in banking, military, etc.
- **Result**: billions spent on remediation; millions of jobs created to fix software.

Rise of Cloud Computing

On-Premise to Cloud

- Earlier: companies stored software and servers on-site (**on-premise**).
- Cloud providers like **Amazon, Microsoft, Google** changed the game.

Cloud Service Models

1. **Platform as a Service (PaaS)** – Developers build apps without managing hardware.
2. **Software as a Service (SaaS)** – Complete applications delivered via the internet.

Benefits

- No need for local servers or infrastructure.
- Software can be deployed and scaled instantly.

Mobile Revolution (Post-2004)

- Mobile phones became affordable and accessible.
- Smartphones = mini computers with OS, apps, and hardware.
- Revolutionized user accessibility — even street vendors use mobile apps today.

Client-Server Evolution

- Client could now be a **PC, Mac, tablet, or smartphone**.
- Server still hosted main logic and data.
- Enabled large-scale B2C (Business to Consumer) innovation.

Modern Infrastructure: Cloud & AI

Cloud Credits

- Students and startups can now deploy apps using free credits (e.g., $100 AWS credit).

AI Revolution

- AI has existed for decades, but has now become **affordable and accessible**.
- Libraries and tools are democratized — usable by small teams or individuals.
- Breakthrough: **LLMs (Large Language Models)** like ChatGPT.

AI Use Cases

- **Traffic Violation Detection** using AI cameras.
- **Manufacturing QC**: detecting defects via AI cameras on conveyor belts.
- **Banking**: fraud detection, spam filtering.

  AI is expected to **upgrade most existing software**, opening up millions of new jobs.

Roles in the Modern Software Industry

1. Developer / Programmer (60–70%)

- Core of the software industry.
- Writes and maintains application code.

2. Product / Program Managers (10–20%)

- Coordinate development.
- Handle client requirements, timelines, and execution.

3. QA and Testing

- **Manual Testing**: Done during early or experimental stages.
- **Automation Testing**: Uses scripts to test software repeatedly.

Famous Bugs

- **Amazon Bug**: Users added negative quantity to cart and got credited money.
- **NASA Bug**: Mismatch of data types caused a $300M rocket failure.
- **Y2K Bug**: Estimated $300B fix cost globally.

  QA is essential to prevent billion-dollar mistakes.

4. SDET (Software Developer in Test)

- Combines development and testing.
- Writes automated test cases in code.

5. DevOps

- Automates software deployment and environment setup.
- Builds CI/CD pipelines.

6. SRE (Site Reliability Engineer)

- Ensures uptime and performance.
- Handles monitoring, alerts, and disaster recovery.

7. Cybersecurity Experts

- Protect systems against hacks, data breaches, and cyber attacks.

Industry Takeaway

- Software has become essential to every business sector — agriculture, banking, retail, logistics.
- Mobile, cloud, and AI revolutions have created waves of new jobs and roles.
- Testing, DevOps, and AI integration are now core to modern software projects.

We're at the edge of a new AI-driven revolution that will redefine the industry once again.
