Emerging Distributed Architectures

Course Overview

Unil | HEC | dop lab
Benoît Garbinato
distributed object programming lab

Learning objectives

- Learn about the content, structure & approach of this course
- Learn about the organization, the project & the evaluation of this course
- Learn about the different technologies used in this course

Content (overview)

emerging distributed architectures

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context-aware mobile computing

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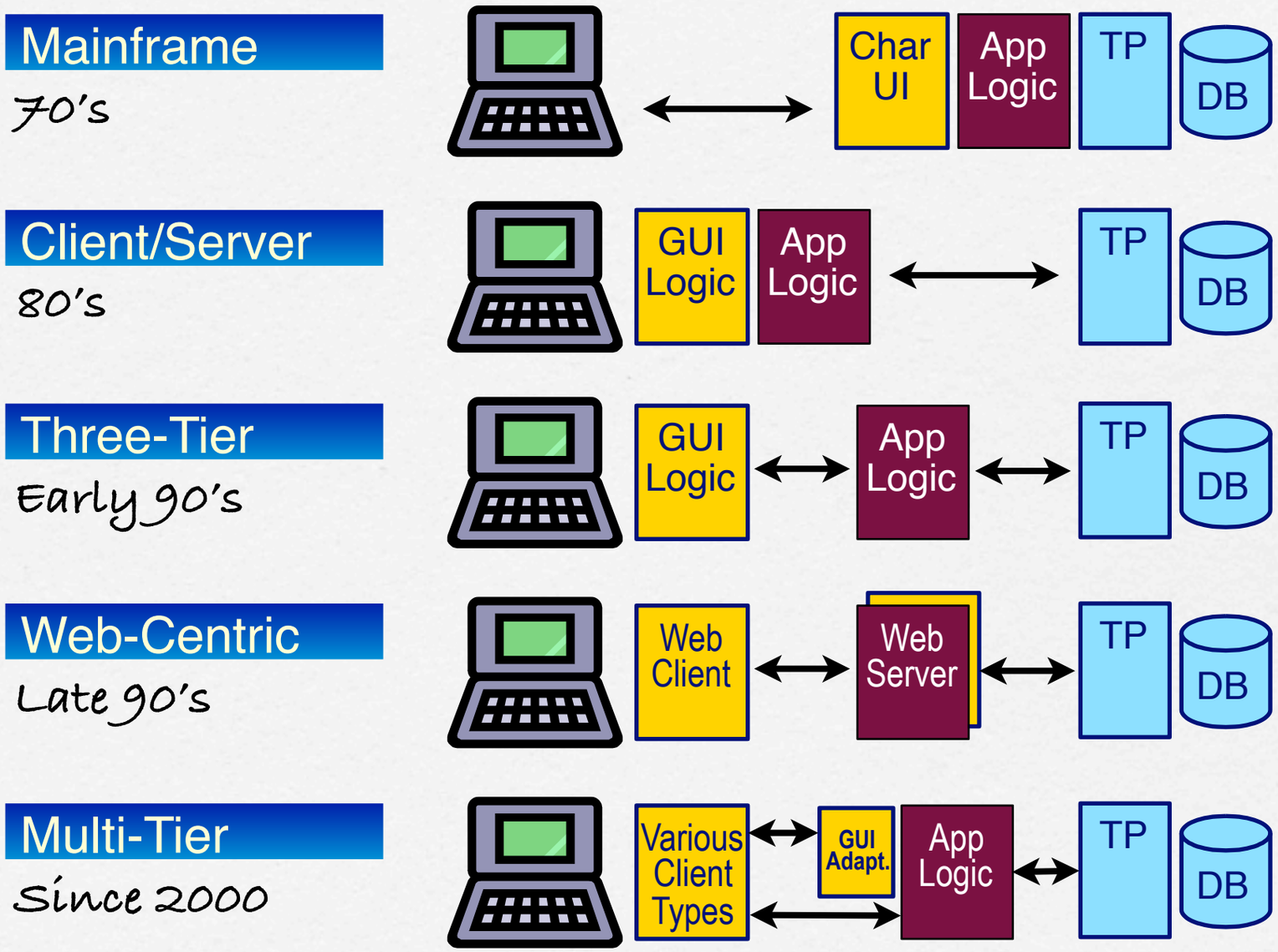
multitiered architecture and the cloud

Architecture evolution | Specialization (1)



Architecture evolution | Specialization (2)

1980s: one man, one computer
- workstation, personal computers
- graphical user interfaces

1990s: the network is the computer
- the Internet accessible to all
- distributed operating systems

2000s: my phone is my computer
- smartphones & tablets as computers
- generalization of wireless networks

2010s: everything is a computer
- smart objects & the Internet of things
- personal networks connected to the cloud

Content (detailed)

THURSDAY	8:30 – 10:00		10:15 – 11:00	11:15 – 12:00
Feb 22	course overview	context-aware mobile computing	discover lab & development tools	
Mar 01	location-based publish/subscribe	introduction to matchmore.io	learn about the project + create your group	
Mar 08	multitiered architecture & cloud services		elaborate the concept of your location-based mobile application	
Mar 15	application logic		present the concept of your location-based mobile application	
Mar 22			implement your application based on matchmore.io alone	
Mar 29				
Apr 05	Easter break			
Apr 12	present the first implementation of your context-aware mobile application			
Apr 19	web services		add server-side application logic to your application	
Apr 26	data persistence			
May 03	asynchronous interactions			
May 10	Ascension (public holiday)			
May 17	message-oriented middleware		add server-side data persistence to your application	
May 24				
May 31	present the complete implementation of your context-aware mobile application			

Organization (general)

- Thursday
  - Lectures : Internef 237 (click to see map)
  - Projects : Internef 143 (click to see map)
- Evaluation :
  - Projects (P_i) - group projects, compulsory
  - Final exam (E) - written exam, compulsory

if $E \geq 3$: $grade = 0.5 \times \sum_i^n 1/n \, P_i + 0.5 \times E$

if $E < 3$: $grade = E$

Course registration

- For organizational reasons, you need to register to this course by following the instructions available at:

  http://bit.ly/2ss3BOY

- Please register by Wednesday 28 February at the latest!

The team

Benoît Garbinato

professor

Vaibhav Kulkarni

assistant

Benoît Garbinato

PhD in ComputerScience
Worked in the industry
Professor @ Unil since 2004
Launched a startup in 2017

Vaibhav Kulkarni

B. Eng. in Electronics & Telecommunication
MSc in Communication Technology
MSc in Embedded Systems
PhD student in Information Systems

Introduction © Benoît Garbinato

dop lab

Further information

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Basic technologies

- The Internet protocol stack
- The Android + Java mobile platform
- The iOS + Swift mobile platform
- The Java enterprise programming platform

Warning!

if you are hungry for this:

and you identify with this:

you came to the
wrong course!

Warning!

if you are hungry for this:

and you identify with this:

you came to the right course!

The main course?

Group projects!

1. You form or join a group of students for the project
2. You collaboratively imagine a simple mobile context-aware application for users of the unil campus
3. You collaboratively implement a first version using only a cloud service providing support for context-awareness
4. You extend your application with features that require a backend of you own, in addition to the cloud service