Pragmatic Software Architecture

Introduction

Radovan Semančík

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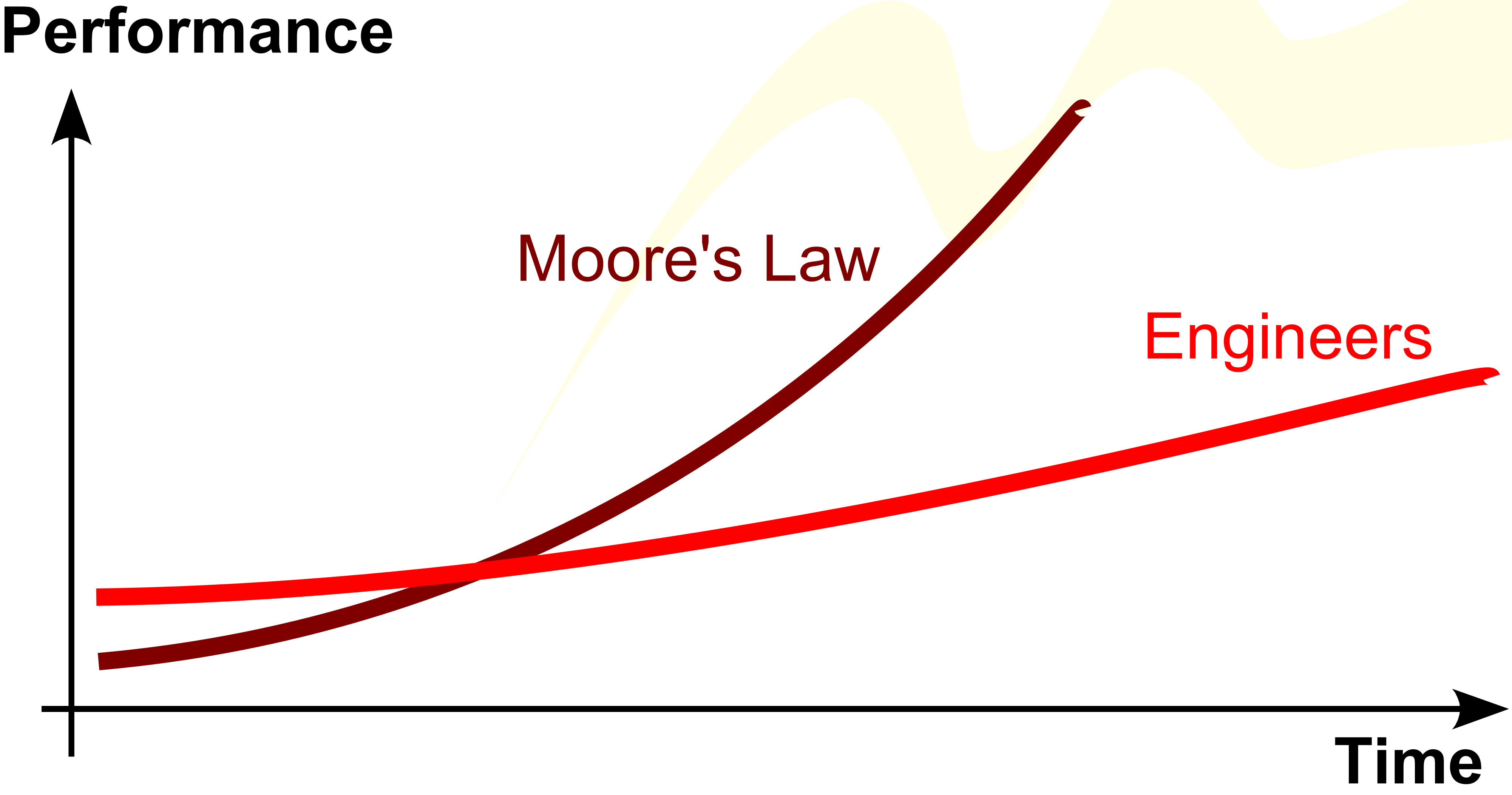
Agenda

- Motivation
- Approach
- Pragmatic Architecture
- Conclusion

Motivation: Complexity



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TESLA
TC120M1
0,1μF
800Ω
TESLA

Gateway
ERP
Data Warehouse
Adaptor
Customization
EAI
CRM

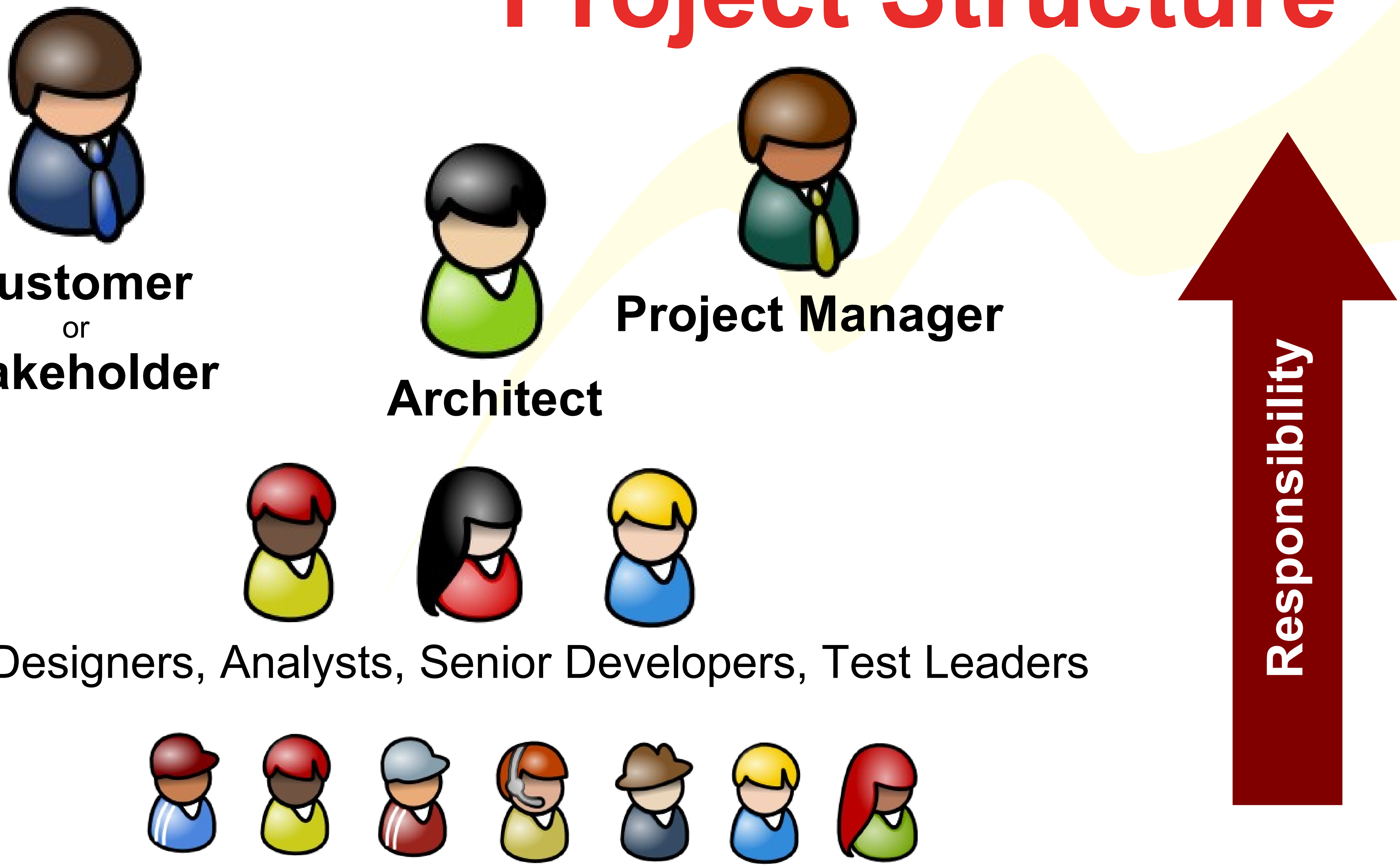
Solution

- Higher efficiency of software projects
- Better results (better products)
- Higher probability of project success

Know what you are doing

Know how your decisions affect the result

Project Structure



Customer
or
Stakeholder

Architect

Project Manager

Responsibility

Designers, Analysts, Senior Developers, Test Leaders

Developers, Testers, Documenters, Administrators, Support Staff, ...

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Architecture

- **Architecture is important**
  - Bad architecture ruins the result
  - Appropriate architecture leads to success
- **Architecture is not just about technology**
  - Technological constraints
  - Economic constraints
  - Social constraints, ...
- **Pragmatism**
  - The only thing that matters is result

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Architectural Principles

Form follows function

- **Design what is needed**

  ... not what you are used to design

Expected Result

versus

Architectural Principles

Form follows function

- **Design what is needed**

  ... not what you are used to design

- **Architecture must be <u>appropriate</u> for the purpose**

  Neither worse nor better

  Neither smaller nor bigger

  Solution for a problem, not problem for a solution

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Wrong Architecture

Designed

Implemented

Voodoo Architecture

- **Principles as rituals**

  Using principles without understanding them

- **Unreasonable beliefs**

  Sacred Technology

  Holy Design Rules

  Panacea

  Silver Bullet

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Appropriate Architecture

- **Pragmatism**
  - Result is important, not the process of creation
  - Use any tool or process that leads to desired result
- **Balance between extremes**
  - Extremes seldom provide any good
- **Parsimony – Simplicity**
  - *Entia non sunt multiplicanda praeter necessitatem*
    - William of Ockham (1285–1349)
- **Feasibility**
  - Architecture is useless if it cannot be implemented

Appropriate Architecture

- **Divide and Conquer**

  Divide the system into manageable parts

- **Defend the Empire**

  Creating the system is only half of the success

  You have to maintain it, keep it operational

- **Feedback**

  Feed your experience back to architecture and design

- **Vision**

  You need to know where are you going

Pragmatic Software Architecture Course Outline

- Software Development Process
- Architectural and Design Principles
- Software Qualities
- The Golden Path
- The Fallacies
- Famous Architectures
- Trends
- Management

Conclusion

- **Motivation**

  Handling Complexity

  Efficiency

- **Approach**

  Appropriate Architecture: *Form follows function*

  Pragmatism: *The only thing that matters is result*

- **Solution**

  Parsimony, Feasibility, Feedback, Vision

  Divide, Conquer & Defend

  Balance

Questions and Answers

Thank you ...

Ing. Radovan Semančík

nLight, s.r.o

radovan.semancik@nlight.eu

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