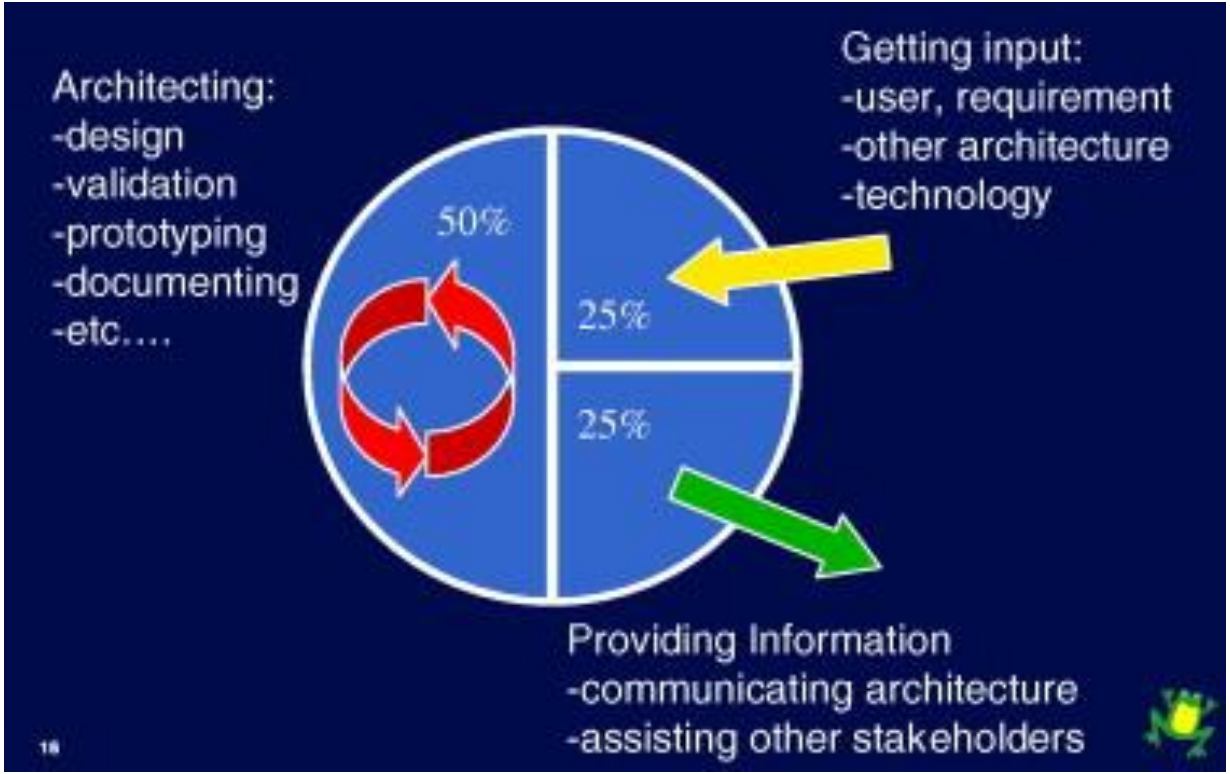
Architecture activities

- Architectural analysis - understand environment where system will operate and **define requirements**
  - What system will do when operational (functional requirements)
  - NFR: mentenability, reliability, operability, security, compatibility (ISO/IEC 25010: 2011 std)
- Architectural synthesis
  - Process of creating the architecture
- Architectural evaluation
  - Process of determining how well the design satisfies the requirements
    - Can occur:
      - After some portion of the design has been completed
      - After the final design has been completed
      - After the system has been constructed
- Architectural evolution
  - Process of maintaining and adapting existing software architecture to meet changes in requirements and environment

Architect time allocation



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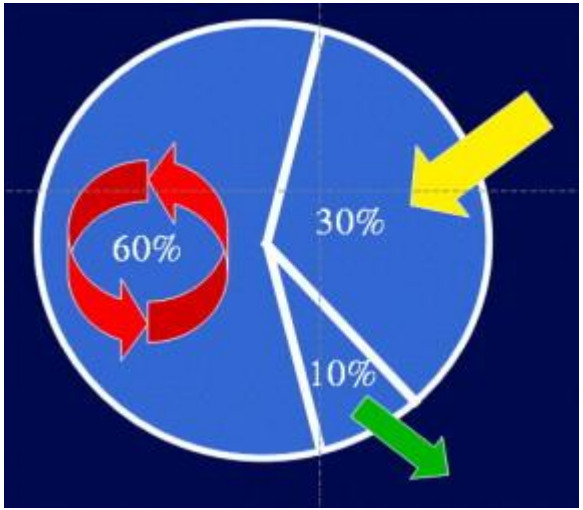
Gold plating architect

- Architecture not engaged enough with developers
- Probably doing a good technical job, as they are getting plenty of input
- Do not regularly provide value to their immediate environment
- Input will be too late and be ignored



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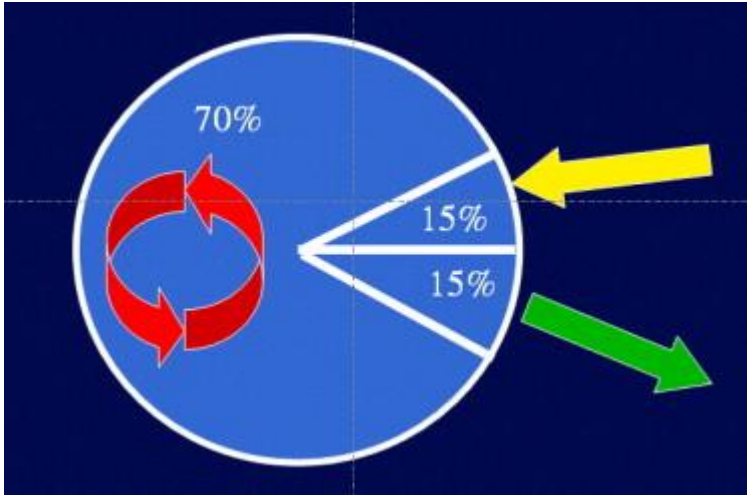
Ivory tower architect

- Has isolated itself
- It is doing far too much navel gazing
- May enjoy but simply not engaged enough with external stakeholders
- Not getting enough input from the users and developers
- Not providing enough value to their software development organization



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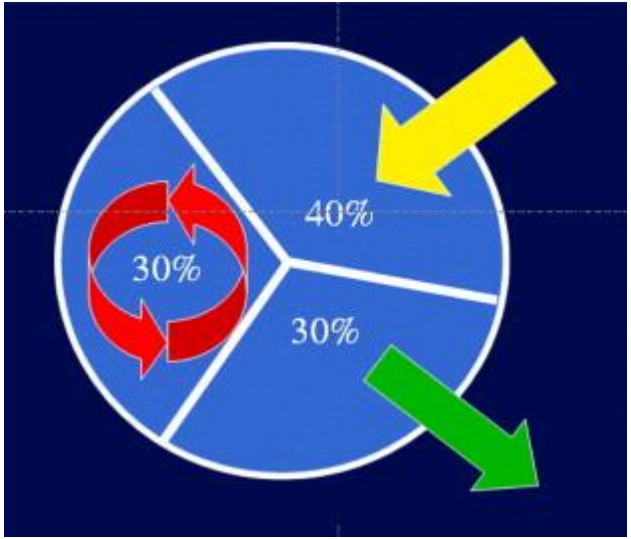
Absent architect

- He is spending far too much time traveling the world
- Unless this is a very mature system that requires very little architectural work, he will run into architectural difficulties



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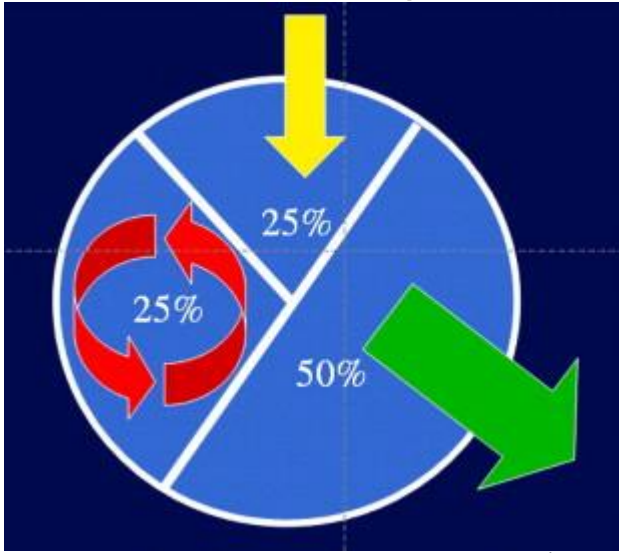
Just consultant architect

- He is acting more as an internal consulting shop
- His travel and conference budget is simply too large
- If his focus is helping internally, maybe this should be made explicit



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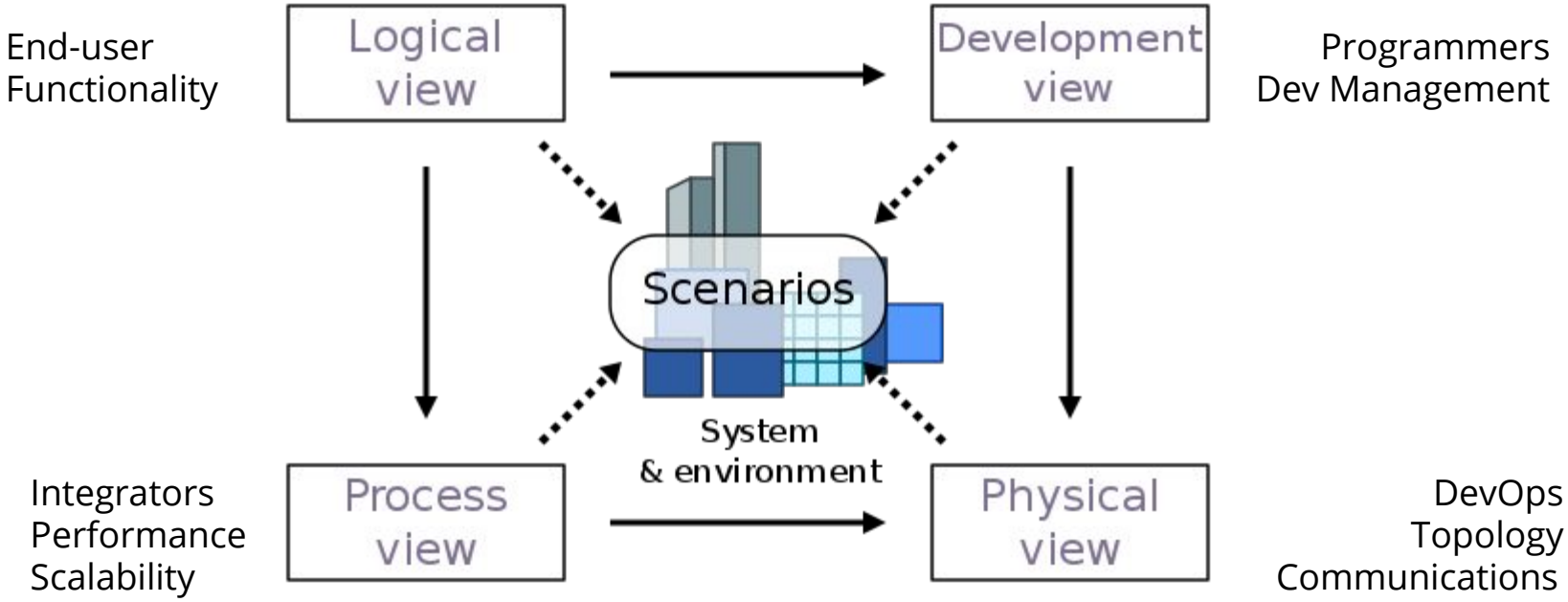
4+1 architectural view model - Philippe Kruchten

- Logical view
  - Functionality of the system described by UML diagrams: class and state diagrams
- Process view
  - Dynamic of the system (runtime behavior - sequence, communication, activity diagram):
    - Explains the system processes and how they communicate
    - Addresses concurrency, distribution, integrator, performance, and scalability
- Development or Implementation view
  - System from a programmer's perspective (UML Component/package diagram)
- Physical or Deployment view
  - System from a DevOps point of view (deployment diagram)
- Scenarios or Use case view
  - Set of use cases or scenarios for tests of an architecture prototype
  - Sequences of interactions between objects and processes

https://www.cs.ubc.ca/~gregor/teaching/papers/4+1view-architecture.pdf

Illustration of the 4+1 Architectural View Model



https://en.wikipedia.org/wiki/4%2B1_architectural_view_model