



Minimalist Architecture

Less Is More



What Architecture Imposes

Imposes

- Guidance
- Constraint
- Best Ideas
- Lessons Learned

on
designers and developers

Changes the way people must work!!!



Architect Needs Power

- Wield too much power, and you get resistance
- Wield too little, and you don't make a difference
- A minimalist approach is best



Minimalist Approach

1. sort out highest-priority architectural requirements
2. do *as little as possible* to achieve them
 - keep the set of requirements as small as possible
 - ensure that technical staff meets key requirements



What Are Architectural Decisions?

- Have a overall system perspective
- Identify
 - key structural elements
 - externally visible properties
 - their relationships
- Define how to achieve key architectural requirements



What Are Architectural Decisions?

- If you can defer a decision to a lower level, it is not architecturally significant
- families of applications
 - individual applications
 - component assemblies in an application



Architectural Decisions

- Maintain system integrity
 - single uniform design, structure
- Crosscutting concerns or system properties
 - some implementation decisions cannot be made in isolation by the developer with a narrow focus



Justifiable Restrictions

Limit intellectual freedom of designers & developers only if

- it results in
 - demonstrable contribution to
 - strategic and systemic properties that
 - can't be achieved any other way



Architects Should

- **not waste** time on decisions that are not architectural
- **channel creativity** of designers & developers in fulfilling architectural vision
- be forced to **write code**, so they stay in touch with reality



Limiting Control

- Architects have a unique spanning vision
- Developers often make localized, suboptimal, decisions
- Don't try to do more with an architecture than it should do
- Organizations can only absorb so much structure



Limiting Control

- Architects must balance
 - anarchy
 - architecture/structure
- Initial effort should be conservative
 - implement less structure rather than more
 - take a few bold steps that make critical differences



Necessary Control

- Must set constraints
- Must take away some decisions from people who are used to making them
- Impose system-wide benefits
- Keep decisions to a minimum
- Work with management to make it stick



Necessary Control

- Document decisions with rationale
- Achieve broadly-scoped qualities with focused intent

What Goes in a Software Architecture Document?

Discuss

- Approach, notation, representation
 - Conceptual, Logical, Execution Architectures
- Key decisions
 - Decision
 - Rationale
 - Impact
- Software qualities, other factors that impact architecture
 - Define them—what does this mean?
 - Discuss impact on system