

# What is architecture?

## Not just ‘work properly’!

- The shape given to a software system
  - the division of the system into components
  - the arrangement of those components
  - the ways in which those components communicate with each other
- Goals
  - Minimize the lifetime cost of the system
    - development, deployment, operation, and maintenance
  - Maximize programmer productivity
    - easy to understand, develop, maintain and deploy
- Strategy for a good architecture
  - Leave as many options open as possible, for as long as possible

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## Support the life cycle of system

- Development
  - Different team structures imply different architectural decisions
  - Small team (monolithic system) vs. a group of teams (component-per-team)
- Deployment
  - Easy - deploy with a SINGLE action
  - Early - consider the deployment issue early on
- Operation
  - Communicate the operational needs of the system (e.g., reveal the operation to developers)
- Maintenance
  - the most costly (new features, trouble shooting, bug fixing ...)
  - Spelunking and risk