Introduction

CSE 403, Winter 2006

Software Engineering

http://www.cs.washington.edu/education/courses/403/06wi/

Readings and References

- Reading
  - » *Rapid Development*, Steve McConnell
    - Chapter 1, Welcome to Rapid Development
    - Chapter 2, Rapid Development Strategy
    - Chapter 3, Classic Mistakes
- Other References
  - » *everything* about this class is on the web
  - » http://www.cs.washington.edu/education/courses/403/06wi/

Goals

- Develop a good understanding of the context in which software development takes place
- Learn practical ways to be productive within this context and gain some experience on development projects during the quarter
- Believe that the difficult task of efficient and effective software development can be an interesting and fun challenge, worthy of an entire career - *you gotta believe!*

LittleApp Context

- Many of us build small applications for our own use or the use of our friends
  - » shell scripts, buttons and lights controllers, little simulators, web page builders, off-the-wall homework projects for next quarter, etc …
- Requirements are limited
  - » probably owned by one person or at most two
- One developer
- One release (plus a few service packs …)

Advantages of LittleApp

- Great communication between customer and developer
  - » clear picture of simple requirements
  - » requirements can be pruned and grown in an instant with little follow-on impact
- Pretty good schedule adherence
  - » dream it up at lunch, deliver it at midnight
- Simple to use, no later releases, one developer
  - » you *may* get away with no documentation ...

Disadvantages of LittleApp

- The ideas that created it are probably fairly specific to the original user/developer
  - » Everyone in the world is not a CSE major
  - » Many people have great ideas about software for *their* knowledge domain that we would never think of on our own
- LittleApp is little!
  - » Even Superman can only do so much in a day
- It's under-documented … a support nightmare

BigApp Context

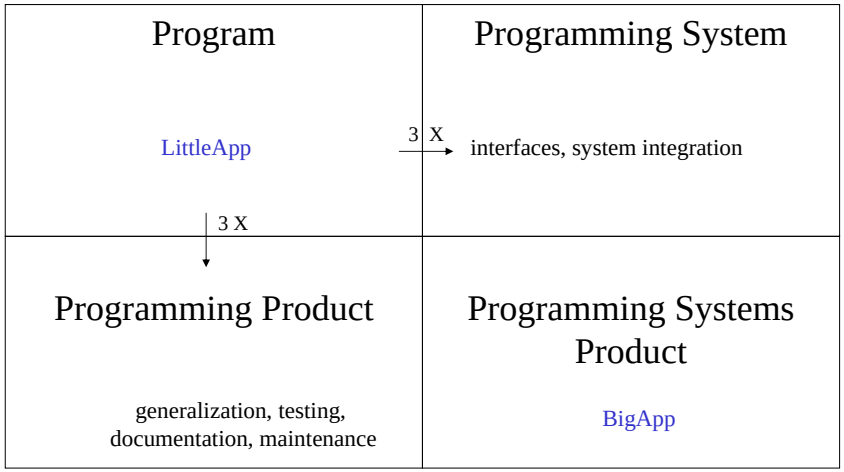
- Potentially huge customer base
  - » retail transactions, financial accounts, imbedded apps, office worker desktops, ...
  - » The company doing the development takes on a big risk and spends big money in the hope of gaining a big reward (staying in business, expanding the business, …)
- Lots of customers and developers
- Long, complex, integrated schedule

Advantages of BigApp

- Lots of customers can mean that the product actually meets a widely felt need
  - » Creating a successful product that is used by thousands or millions of people is very satisfying
- Lots of developers means that a larger skill set can be brought to bear on the problem
  - » Working with experts in other fields can raise the overall product quality significantly, and it's fun
- Money. A half-ton of money can work miracles

Disadvantages of BigApp

- The customer is a many headed beast that is never satisfied
- Lots of developers means that communication is critical
  - » commitments, personalities, changing cast
  - » once you've said something, people go off and do things based on that - unwinding is very hard
  - » management, staff, factory, supplier, …
- Money. Big money makes people act weird



from Mythical Man-Month

Productivity - processes and tools

- There are lots of techniques and tools that can help manage some of the chaos that is part of a BigApp project
  - » clearly stated objectives and definite schedule
  - » motivated teams with clear responsibilities
  - » good support for communication
    - features, bugs, clarifications, meetings, schedules
  - » solid development tools and recommended practices
    - editors, compilers, source control, bug tracking, build management, test suites, simulators, etc, etc

BigApp Development

- BigApp system development is a social activity
  - » groups of people can do amazing things together
  - » individuals do all sorts of unexpected things along the way - expect the unexpected
  - » Focus and communicate
  - » Use the tools but don't expect miracles from them
    - a skilled craftsman knows his tools and their limitations

It's a challenge - enjoy it!

- *Every* project has its ups and downs
- *Every* project has weird requirements, too little time, bizarre management decisions, blockheaded coworkers, disappointing suppliers, rewards and glory for the wrong people, and generally miserable days
  - » so don't be surprised or upset
- *Every* project has the potential for major satisfaction - enjoy it where you find it!

Our projects

- The projects for this class will be based on a client / server architecture
- Project teams will
  - » Define the specific functions of the applications
    - web services, API, client functionality
  - » Develop the code that runs on the server side
    - single service, collate multiple services, ...
  - » Develop the code that runs on the client side
    - browser integrated, standalone app, multi-target, ...

Project Components

drawing is from IBM Web Services Handbook, http://www.redbooks.ibm.com/

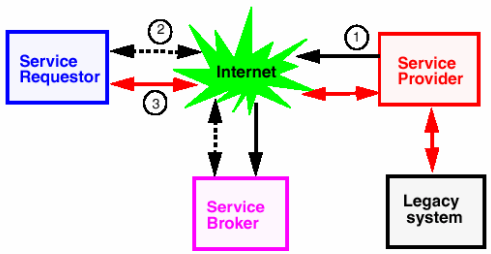


Figure 1-1 Web services roles and operations