Q/P MANAGEMENT
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How Big is My Cloud?

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Session Objectives

- Understand the benefits of measuring cloud projects and applications
- Discuss what can be measured using function point analysis techniques
- Explore the options that need to be considered when establishing an accurate, useful size measure for a cloud application/project

Why Measure Cloud Applications/Projects

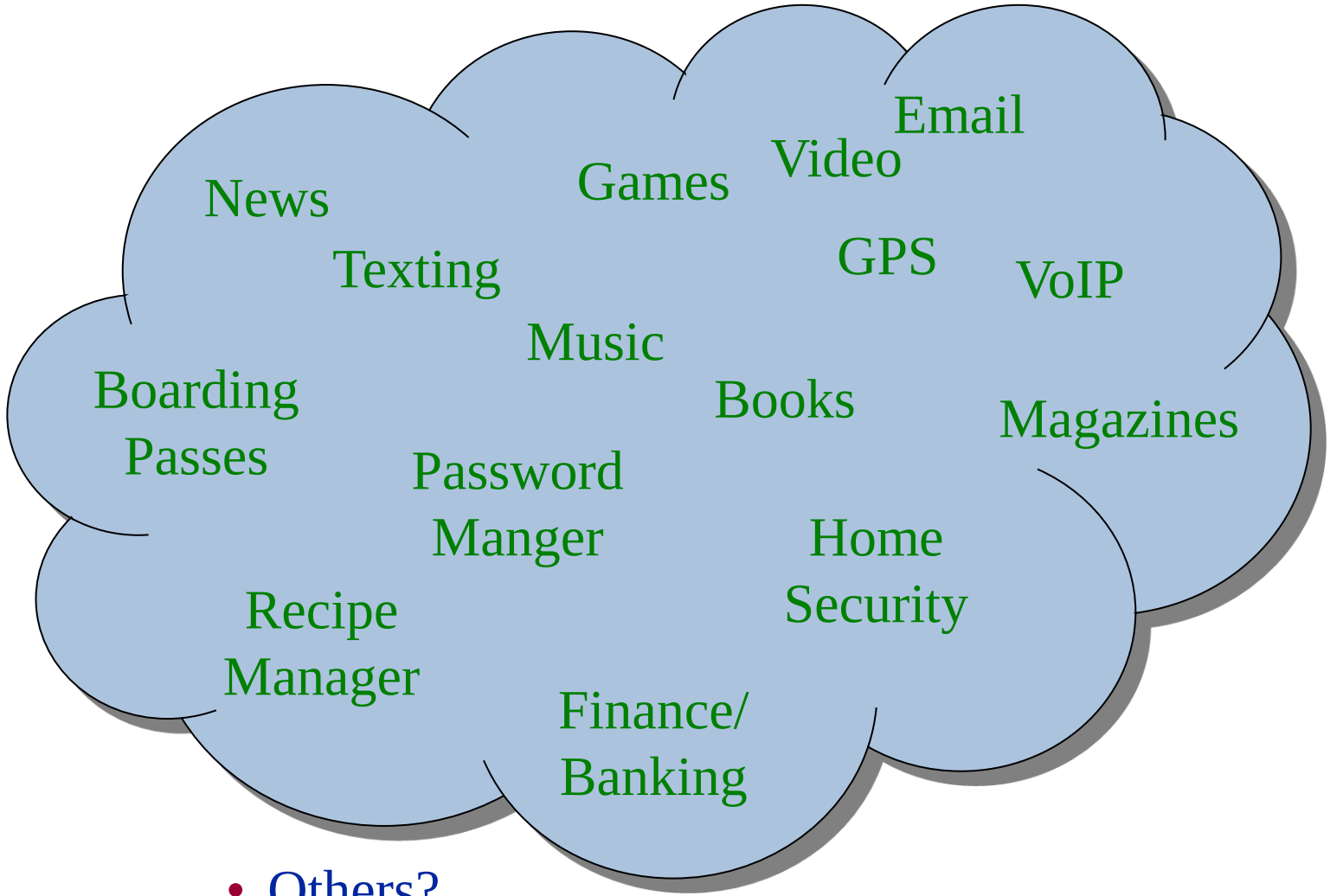
Application Measurements

- Maintenance Productivity (FP/FTE)
- Maintenance Cost ($/FP)
- Application Quality (Defects/FP)
- Maintenance Strategy
- Application Replacement Strategy

Project Measurements

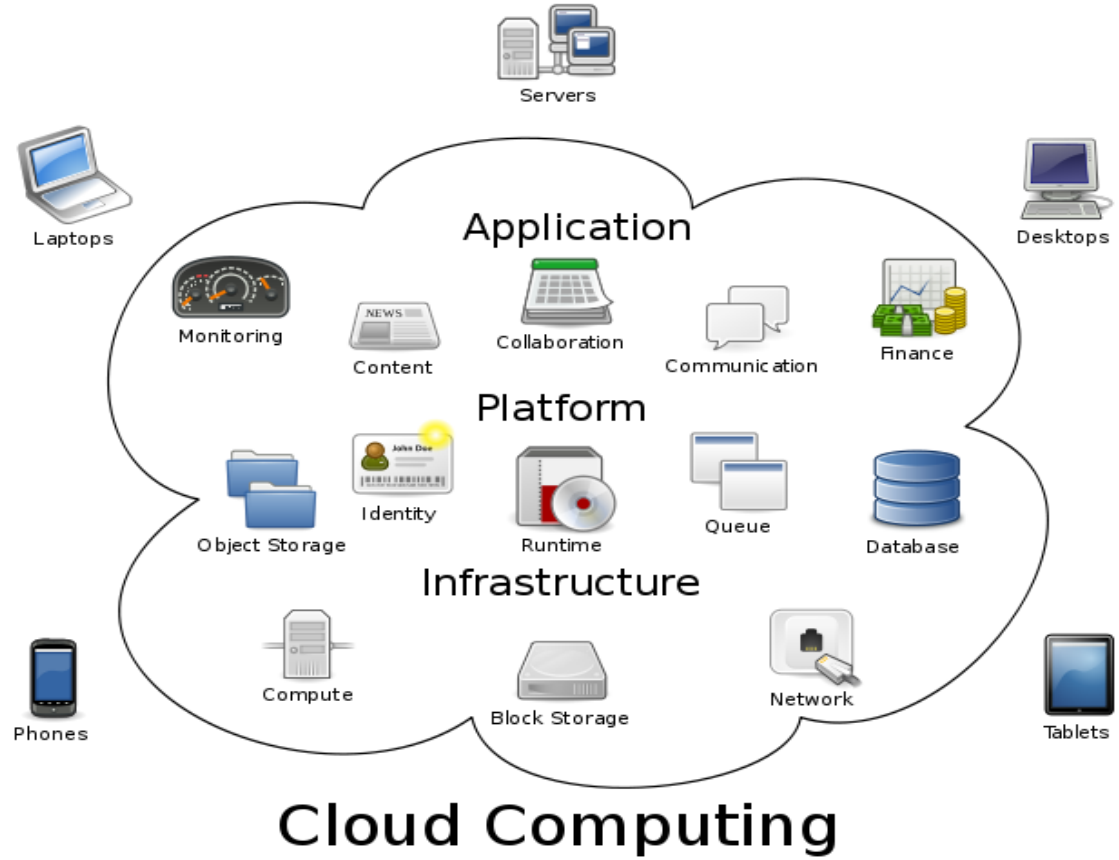
- Requirements Definition
- Estimating
  - Effort
  - Cost
  - Staffing
  - Scheduling
- Quality
- Productivity

Cloud Computing – Timeshare on Steroids!



- Others?
- Growing everyday – software as a service (SaaS)
- The sky is the limit!

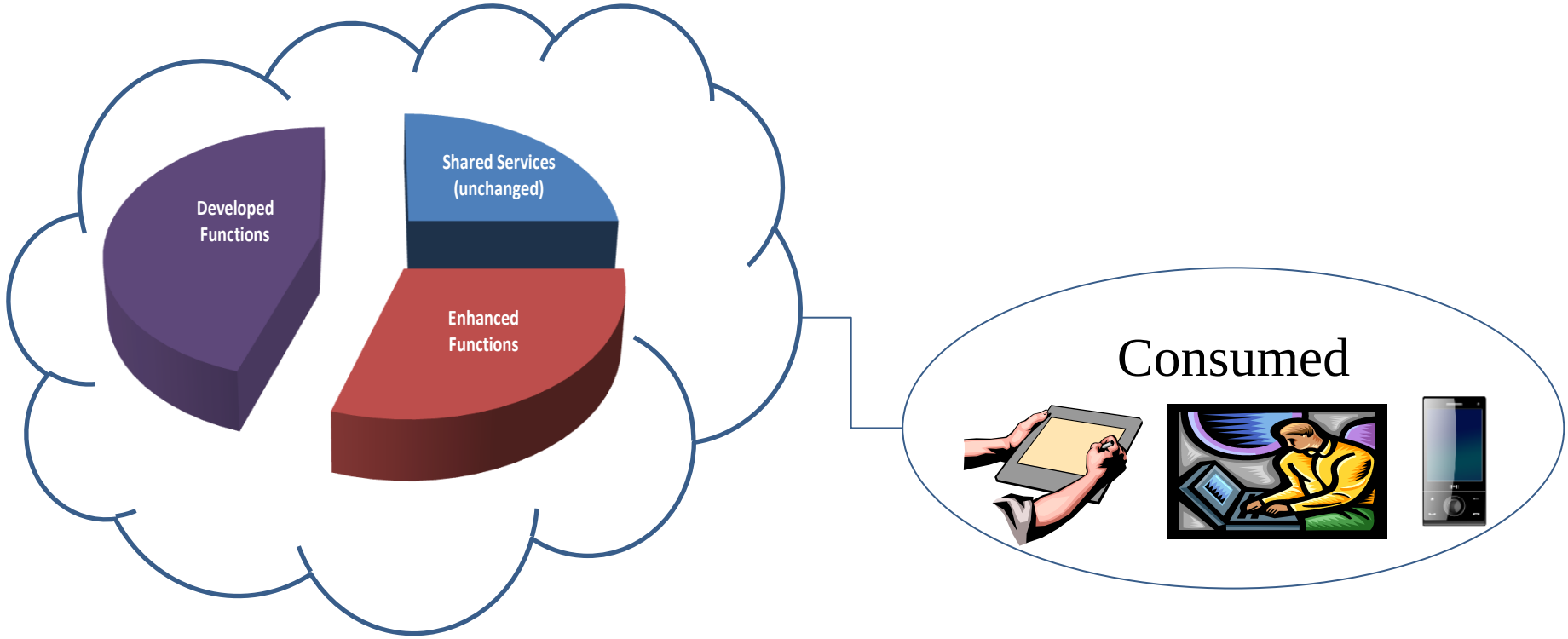
The Moving Parts of a Cloud Application[1]



- Tools exist to measure the technology
  - Storage, network volumes, processor capacity, etc.
- Measuring applications delivered through the cloud continues to be a challenge…as it always has been

[1] This image was obtained from Wikimedia Commons, authored by Sam Johnston on July 24, 2011

Measuring the Various Pieces



- **Developed Functions** Those functions specifically created or enhanced to meet the functional requirements
- **Shared Services** The common functions (i.e. messaging, collaboration, email, printing, VoIP) that are used by the application
- **Consumed Functions** Those functions that are actually utilized by the user of the application

What to Measure? (Continued)

- How much does the custom development cost, what is its quality, how long will it take to deliver?
  - Measure the developed and enhanced functionality
- How much functionality am I delivering to the potential user community and how much does it cost?
  - Measure the developed, enhanced, unmodified and Shared Services functionality
- What do my users really want?
  - Measure the consumed functionality, including developed, enhanced, unmodified and shared services

Why Function Points?

- Well established
- Applicable to all applications and project types
- Independent of technology
- Broad base of knowledge
- Generally accepted industry standard
- International standard, recognized by ISO
- Simple to apply
- Availability of benchmark data to support software estimating, reporting and measurement

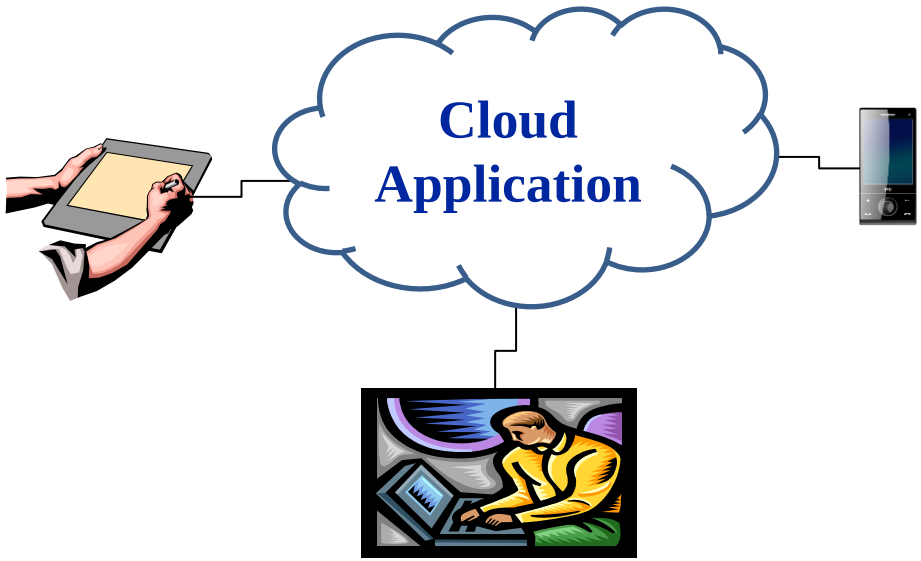
Where to Start?

- What is the purpose?
- What is the intent?
  - New Application?
  - Enhancement project?
- What is to be counted?
  - Delivered or Consumed?
  - Custom development or total solution?
- Whose perspective?

Multiple-Media and Cloud Computing

- Many Cloud applications are intended to run on multiple user devices or platforms
- These devices present a unique opportunity/challenge to software measurement
- Technically the platforms can be very different, but may share common operating systems
- Functionally they can vary by platform
  - Sometimes slight functional variations
  - Other times significant functional variations
- When sizing Cloud applications and projects it is important to consider these different platforms and account for the functionality appropriately
- An accurate size is required in order to establish accurate estimates of cost and schedule

Sizing Applications for the Cloud – Example



Common User Banking Functions

- Balance Inquiry (EO)
- Funds Transfer (EI)
- Bill Payment (EI)

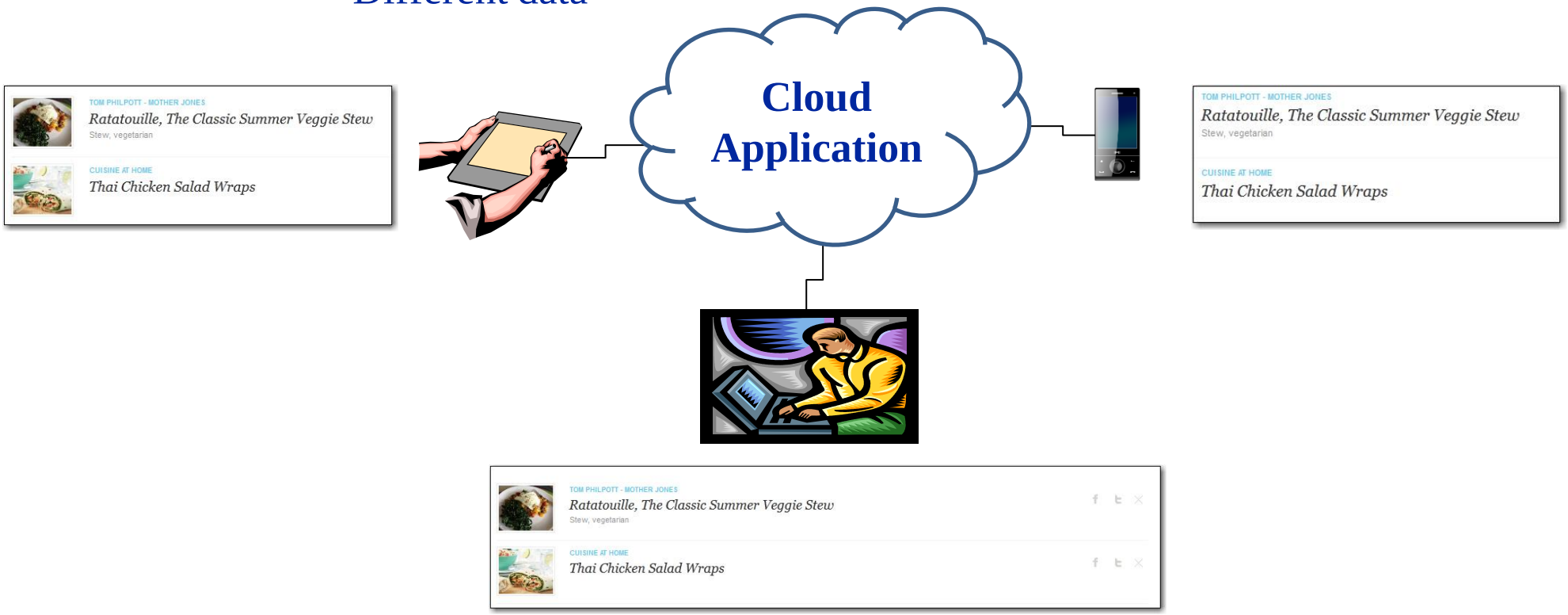
Transaction	Single Media FPs	Multiple-media FPs
Balance inquiry	5	15
Funds transfer	4	12
Bill payment	4	12
Total FPs	13	39

By ignoring the function points associated with multiple user platforms, estimates of effort (requirements – testing/implementation), cost and schedules may be useless

Functional Enhancement or Technical Adaptive Maintenance?

Often, in Cloud applications that run on multiple platforms (i.e. phone, tablet, PC), functions can appear to be similar but are in fact unique

- Different functional capability
- Different data



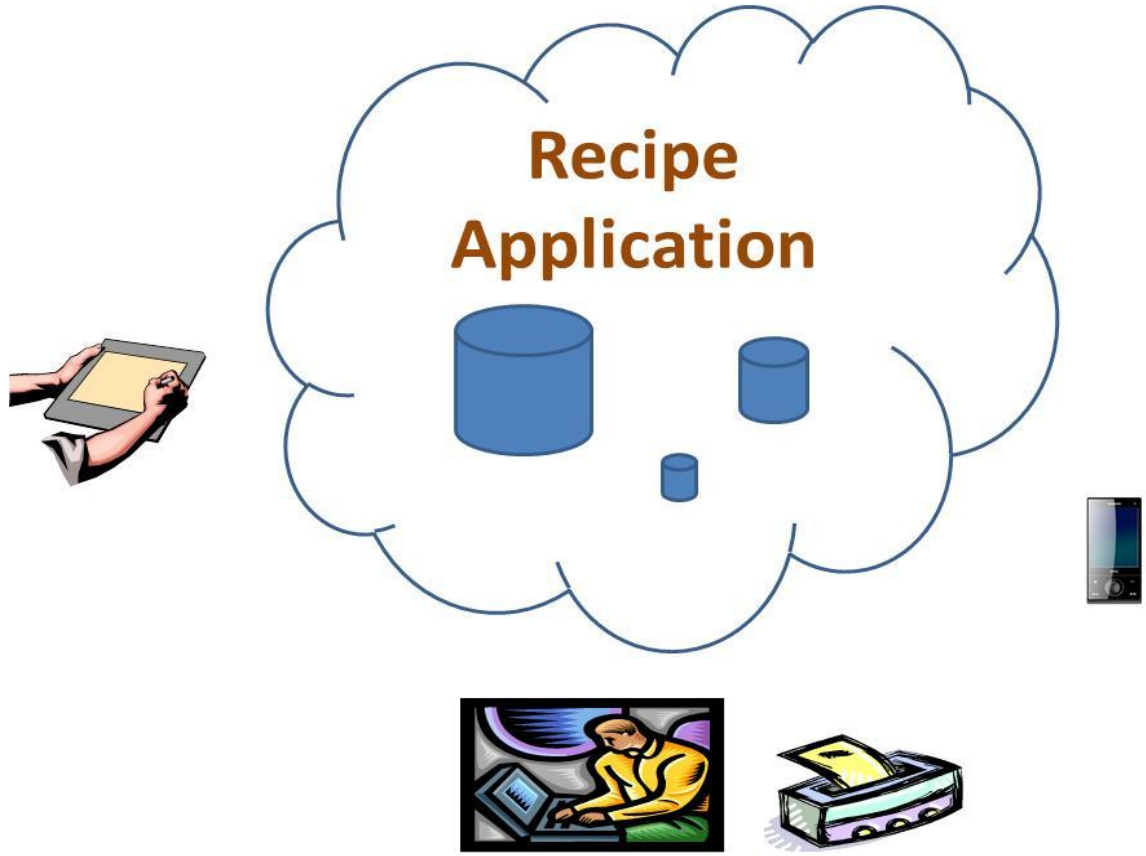
Note: These images are from the PepperPlate recipe management application.
www.pepperplate.com

Functional Enhancement or Technical Adaptive Maintenance? (Continued)

Caution needs to be exercised when analyzing multiple-media to clearly distinguish between maintenance and enhancement

- **Functional Enhancement**: Changes to existing software intended to address customer requirements by either adding new functions, deleting functions or modifying existing functions
- **Technical Adaptive Maintenance**: "Includes technically initiated changes such as changing a business application to conform to upgraded operating systems, or upgrading or changing development tools. These maintenance activities are not the result of changing business requirement functionality."
- If moving an application to a new platform is simply adapting it to run on the platform with no functional changes, it is maintenance

How to Measure



- Accessible through PCs, I-Phones, I-Pads, Android phones and Android tablets
- Functions vary based on which device is used to access the application
- All access a shared data base containing recipes, all are also stored locally
- The application boundary includes all of the functions (cloud and user platforms)

Recipe Application Functions

Function Name	Function Description	Developed	Shared Services	Consumed
Create and Maintain User Profile	These functions are specific to this application and should be considered unique	Yes		Yes
Login	Allows the user to access the Recipe application upon launching. Requires User name and password.	Yes		Yes
Import Recipes	The application allows a user to import from 10 different websites by copying the URL of the Recipe and pasting into an import command. Each site has a different layout and format for the data they provide.	Yes		Yes
Create Recipe	Allows the user to create a Recipe manually by entering in a title, description, ingredients, cooking instructions and nutritional information	Yes		Yes
Edit Recipe	Both created and imported Recipes can be edited on a PC from the Recipe detail page. Recipes can also be deleted from this page.	Yes		Yes
Share Recipe - Email	Ability to share a recipe through various social networks		Yes	No

Recipe Application Functions (Continued)

Function Name	Function Description	Developed	Shared Services	Consumed
Share Recipe - Twitter	Ability to share a recipe through various social networks		Yes	No
Share Recipe – Face Book	Ability to share a recipe through various social networks		Yes	No
Recipe list	Provides a list of all Recipes entered. A Recipe can be deleted from the Recipe list.	Yes		Yes
Recipe categories	Recipe categories can be added and deleted. They cannot be changed.	Yes		Yes
Shopping list	A shopping list can be added to and edited. The final result is printable from the PC and is maintainable and viewable on all devices.	Yes	Yes	Yes

Recipe Application Functions (Continued)

Function Name	Function Description	Developed	Shared Services	Consumed
Weekly planner	A Recipe can be added to a weekly meal planner that can be retrieved on the PC and printed and is maintainable and viewable on all devices	Yes	Yes	Yes
Print Recipes	Allows the user to print the recipes when attached to a PC		Yes	Yes
Scale Recipes	Allows the ingredients of a recipe to be increased/decreased by adjusting the number of servings. Only available on the PC	Yes		Yes
View Recipes	Recipes can be viewed on all of the devices	Yes		Yes
Share Recipes	Provides the ability to share a recipe via email or other social media means		Yes	Yes
Create Menu	Allows the user to build a menu for a particular meal by clicking on specific recipes	Yes		No

How Big is my Cloud? – It Depends!

Functional Component	Developed	Shared Services	Consumed
Internal Logical Files	42		35
External Interface Files			0
External Inputs	84		75
External Inquiries	42	18	45
External Outputs	4		4
Total	171	18	159

- Based on what has been defined, the Recipe Application offers 189 function points
- My piece of this cloud application is 159 function points (developed and shared services)
- When I look at all of my cloud applications, my cloud is >1,000 FPs!

Note: For the purposes of this exercise, all functions are considered to be of average complexity

Summary

- The function point methodology used in this presentation is well defined, well understood and is a generally accepted standard in the industry
- Accounting for all of the functions on user platforms can produce an accurate project size
- An accurate size can aid in developing accurate project estimates
- Sizing cloud applications and projects is easy
  - Give it a try, you might be surprised how large your cloud actually is!